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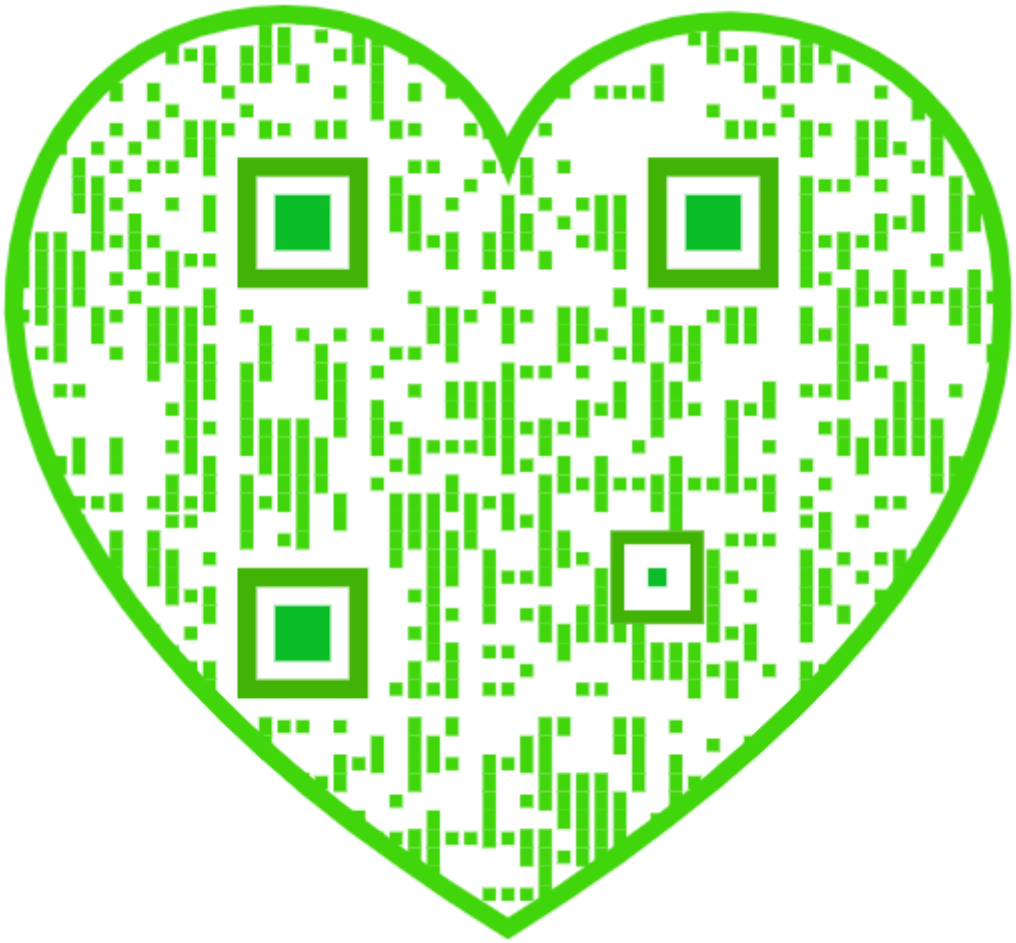
THE PRACTICAL STUD GROOM

BY HARRY SHARPE



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THE PRACTICAL STUD GROOM

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BY

HARRY SHARPE

FOR EIGHT YEARS STUD GROOM AT TULLY, KILDARE.

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PREFACE.

When writing the following pages the Author did not delude himself with the idea that he was about to "stagger humanity" by putting forward startling new theories and propositions in Stud Management. He was actuated by the belief that the contents, founded as they are on a twenty-five years' experience of stud work, might be found helpful to novitiates who had yet to win their spurs, either as stud masters or stud grooms. If old practitioners fail to discover anything new, the Author sincerely trusts that they will at least find much to which they can heartily subscribe.

HARRY SHARPE.

January, 1913.

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THE PRACTICAL STUD GROOM.

Chapter I.

PLANNING A STUD FARM.

*"In my wanderings up and down England I have never met with an ideal thoroughbred stud. Beautiful places I have frequently seen, but there has always been something wanting—only too frequently many desirable things * * * * I am sufficiently sceptical by nature to doubt whether at present in the United Kingdom such a place as an ideal stud exists."*

So wrote the Rev. E. Adrian Woodruffe-Peacocke, Soil, Grass and Game Specialist, in an essay entitled "The Ideal Thoroughbred Stud," published in 1906. It is extremely doubtful whether, among persons qualified by practical experience to give an opinion on the subject, there would be found many, or even any, to dispute the reverend gentleman's dictum. But the hundred and one items that go to make up an absolutely perfect stud farm are so varied in their nature that it is almost impossible to combine them all within the four corners of any given plot of land, whether containing one hundred or one thousand acres. Good climate, soil, herbage, water supply, shelter, elevation, drainage, stabling and fencing are essential to the

making of an "ideal" stud. The difficulty is to get them all in conjunction. For this reason it is to be feared that the absolutely ideal stud is fated to remain a laudable ambition, extremely difficult of attainment.

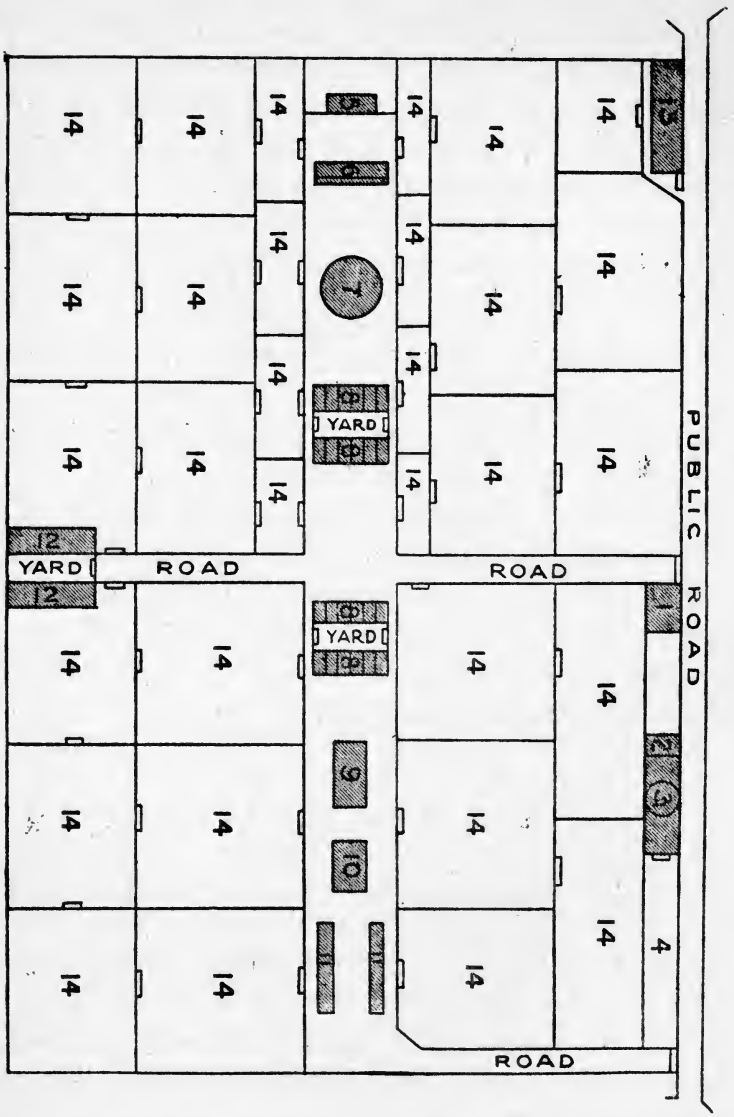
It would be a very simple matter to take a clean sheet of notepaper, and sketch thereon the plan of an ideal stud farm—ideal in its details of stabling and paddocks and their perfect correlation to each other; but one might travel many miles, and spend many days in one's search for a stretch of land on which the already existing buildings and hedges lent themselves to the stud architect's plans, to say nothing of such vital questions as soil, drainage, and water supply. Even if an ideal block of land, innocent of both buildings and hedges, were discovered, the question of shelter would have to be met, because a wind-proof hedgerow is the growth of years. The laying out of a stud farm is usually a case of "cutting one's suit according to one's cloth," that is to say, adapting already existing materials to the desired end.

It is a very curious fact, that the stud groom's advice is very rarely sought in stud-farm planning. Yet were he a trained draughtsman, he would, from his knowledge of every little detail in stud management, be an ideal stud-farm architect so far as stabling and the arrangement of paddocks are concerned, while even his ideas on questions of soil and herbage might be worth consideration. Many an accomplished architect has planned houses that he considered the last word in convenience and comfort, but in which the subsequent residents have immediately discovered serious discomforts and inconveniences at once obvious to

the architect when pointed out to him. The following is an illustration of my point. At a certain stud, the palatial stallion boxes, with covering yard attached, are built within twenty yards of the brood mare boxes. On the ninth day after foaling, a mare is found to be in season. She is forthwith taken to the covering yard, her foal being left behind in the box. Just as the covering hobbles are being adjusted, she hears her offspring's shrill cries for her, and plunging wildly, scatters the men in all directions. Presently, when securely hobbled, and the stallion is approaching her, the foal's cry of distress rings out again, rousing all her maternal instincts, and occasioning a desperate effort to free herself from the restraining hobbles, which upsets everything, especially a high-strung stallion. The twitch has to be applied to give her something else to think about, while even the mildest-mannered stud groom is apt to indulge in unparliamentary language, and express a pious wish that a certain architect were present to hear some criticism of his handiwork.

SOME ESSENTIALS.

Although the quest for a site that will lend itself to the planning thereon of an absolutely ideal stud farm may mean the expenditure of much time and trouble, and entail many disappointments, there are a few broad principles that should govern the laying out of any stud, ideal or otherwise. The following is a rough plan of the essentials of an ideally-arranged stud farm:—



1.—Gate house, occupied by the stallion man.
2.—Stallion boxes.
3.—Roofed covering yard.
4.—Stallion paddock, for exercising or grazing.
5.—Stud groom's house.
6.—Foaling boxes.
7.—Circular sand ring.
8.—Brood mare boxes.
9.—Corn lofts, grinding and mixing room
10.—Men's quarters, saddle room, etc.
11.—Hay and straw barns.
12.—Yearling boxes.
13.—Sick quarters.
14.—Paddocks.

The home yard, containing the stud groom's house, brood mare boxes, foaling boxes, and general offices, should be centrally situated, with the paddocks radiating from it, like the spokes from the hub of the wheel. The stallion boxes and covering yard should be at a distance from the mares' boxes, and so situated that the sires can get to their daily exercise ground, be it public highway or paddock, without having to run the gauntlet, *en route*, of batches of mares and foals, grazing on either hand. The foaling boxes should be near the stud groom's quarters, and somewhat removed from the other brood mare boxes. The yearling boxes should also be well removed from the mares' quarters.

Taking the fourteen items in detail, at first blush it might be thought that the gate house could safely be left to individual taste and ideas. But in gate lodge architecture, comfort and convenience are so commonly sacrificed to beauty of external design, that it is desirable briefly to point out where the average servant's cottage falls short of perfection. The introduction of the subject is justified by the fact that a contented, happy servant is generally an ideal servant. As married men are more apt to stay at home after the day's work is ended than single men, they make, other things being equal, the best stud farm employées, being more likely to be available in cases of sudden illness among the horses. Put briefly, the ideal gate house for the ideal stud should contain not less than three bedrooms—one for the man and wife, one for the sons, and one for the daughters. Anything less is not conducive to decency, comfort and contentment.

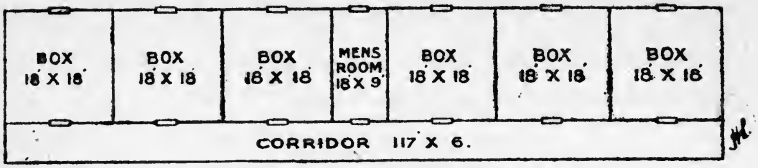
Stallion Boxes.

The Stallion Boxes should not be less than 16 feet square; an ideal size is 18 feet square. They should be

lofty, well-lighted and ventilated. The door posts should be fitted with rollers, to prevent injury to the horse's hips if he is inclined to be headstrong when being brought out to serve mares. The Covering Yard should be of generous dimensions; plenty of "elbow room" is required when covering "maiden" mares for the first time. A circular, roofed-in covering yard is preferable. Well-bedded down with straw or tan, it is useful all the year round, being a safe lungeing ground in wet weather or when roads and paddocks are slippery from frost. The inclusion of the Stallion Paddock in the general scheme is not an imperative necessity, and will depend largely on the individual stud master's views on stallion management. As I deal fully with the care of stallions in a later chapter, I will only point out here that with a hot-tempered sire, whose exercise on the public roads would be attended with much risk, some such arrangement for private exercise would be a necessity. Where the practice of giving the stallion a daily run at grass, after the covering season has ended, is contemplated, it will be necessary in planning the boxes to see that the windows (if any) facing the paddock are so arranged that in the case of the one paddock having to serve for more than one sire, there shall be no chance of the other inmate or inmates of the boxes being worried or unsettled by being able to watch the gambols of the occupant of the paddock for the time being. I should have stated with regard to the Covering Yard, that the entrance gate to it may also serve as the "teasing bar," at which the mares are "tried" before being covered. It should be at least 12 feet in length and 5 feet in height, and well padded with leather or cocoanut matting.

THE FOALING BOXES.

The Stud Groom's House should overlook the stud yard, and, if possible, the paddocks generally; for although his duties will entail many walks abroad, it will be found very convenient if, when he is attending to correspondence, or taking a short "easy," his windows enable him to keep in touch with all that is going on. The Foaling Boxes, because of the important part they play in stud farm work, should be in close proximity to the stud groom's house, not only to serve that individual's convenience, but also because the arrangement will tend to isolate them somewhat from the other mares' boxes. All mares that have recently foaled, and especially young mares with their first foals, are the better kept quiet and free from excitement for the first couple of days after foaling, and it is impossible to ensure this desirable quietude when the foaling boxes are within earshot of the daily outgoings and incomings, with the attendant clatter and commotion, of the rest of the mares and foals. No size within reason is too large for the foaling boxes. The author has seen mares, in an 18ft. foaling box, lie down to foal so close to the wall that it was impossible for the foal to be expelled. Again, a few extra feet of manœuvring ground is much appreciated by an attendant when dodging the heels and teeth of a vicious mare, who resents his necessary intrusion to assist a weakly foal. Doubtless many a good horse has been safely delivered in a 14ft. foaling box; but the ideal foaling box for the ideal stud farm should not be less than 18ft. square. The following is a ground-plan of a block of six foaling boxes with sitting-up room for attendant:—



GROUND PLAN OF FOALING BOXES

The six boxes are 18ft. square. The sitting-up room "amidships" should be fitted with a fireplace for heating water for mashes, etc. A corridor, for the use of the "man of observation," runs the full length of the building. Each box has two doors, which arrangement, in case of the mare lying against one, enables the attendant to enter by the other. All doors should open outwards. The doors that open into the corridor should be fitted with small sliding shutters to allow the attendant to watch the mares without entering the boxes. The lighting arrangements must prevent all risk of fire, and the mares coming into contact with the necessary fittings. The scheme of ventilation must be designed to meet all possible conditions of weather. Given a mare in the throes of parturition and perspiring freely, it is obvious that the ventilating arrangements suitable for a balmy May night would be unsuitable for a night in January, with snow on the ground and the thermometer hovering near zero. On a small stud, two foaling boxes might be deemed ample provision; the corridor would be a superfluity and could be dispensed with, the entry to each box being effected through a door opening directly into the sitting-up room.

The Brood Mare Boxes are not the least important items on a stud farm, because the good health of the pregnant and the suckling mare has an important bearing on the after career of their progeny. The minimum size for a box for a mare and foal should be 16ft. square. Anything

less prevents them lying down in comfort together; and, when confined to quarters owing to stress of weather or illness, they cannot take proper exercise.

SAND RING.

With regard to the Circular Sand Ring, it would be difficult to over-state its utility on a stud farm. If there is one indispensable adjunct to the "ideal" stud, it is this "magic circle." Spring, Summer, Autumn and Winter, the stud groom finds it equally useful. It should be located with a view to its equal accessibility from both foaling and general brood mares' boxes, and be about 90ft. in diameter, surrounded by a close-boarded fence 7ft. high. When it is under construction, particular care should be taken to ensure quick and perfect drainage, to prevent its becoming water-logged in rainy weather. The ordinary soil should be removed to a depth of eighteen inches. A foundation of coarse porous gravel, to the depth of a foot, should replace this soil, and then comes a top coating of fine, sharp sand to the depth of at least six inches. Though a square enclosure would be better than no enclosure at all, yet the ideal shape for this yard is a true circle, in which a young flighty mare with her inexperienced foal at foot, enjoying their first spell of outdoor freedom after close confinement in the foaling box, would be less likely to come to grief during their light-hearted frolics, than in a square yard, with its four abrupt corners. For the same reason the circular yard lends itself to the lungeing of yearlings. If properly drained, the "going" is never too holding in wet weather, and when frost threatens, a very thin coating of litter will keep the "bone" out of the ground, so that in-foal mares, which otherwise, owing to the paddocks being frost-bound, would have to be kept indoors, can in small batches stretch

their legs in safety while their boxes are being cleaned out. Again, when the Summer sun has baked up the paddocks and rendered them totally unfit for the lungeing of fat yearlings, the sand ring will be ideal, both from the concussion and tiring-out points of view.

With regard to the materials to be employed in the construction of stud farm buildings, the author has no hesitation in declaring for brick, stone, or concrete walls, tiled roofs and concrete or chalk floors. The straw-thatched roof may have its advantages of warmth in Winter and coolness in Summer, but these are outweighed by the utter impossibility of effectually disinfecting it after cases of fever, strangles, influenza and other infectious complaints. The same drawback applies to boxes built of timber; the cavities between their double-sheeted walls, whether stuffed with fibre or not, afford a lurking place for harmful microbes, which even a powerful spraying machine will not effectually reach. The advantages that bricks and tiles hold over wood and thatch in the event of fire breaking out are obvious.

The best material for floors, when it is available, is chalk. Well rammed down, it takes a durable surface, yet is absorbent, and, best of all, every few years can be easily dug out and replaced with perfectly fresh material. Cobble stone paving, set in mortar or cement, besides being much more costly, has the disadvantage that the mortar has a way of becoming detached from the cobbles, and the horse's urine soaks through the interstices thus created, with the result that the underlying soil becomes saturated with impurity. The remedy is to take up the paving, remove the foul soil, replace it with fresh, and repave—altogether a troublesome and costly process. The ordinary grooved brick or tile used for stable paving, where expense is no objection, answers well, but the cross grooves are apt

to get filled up with dirt if the daily sweep-out is scamped. Next to chalk, the author would prefer a concrete of very coarse gravel and cement. This gives a safe foothold for the horses, prevents percolation of the urine, and, with periodical washing down with water and Jeyes' Fluid, gives clean, wholesome quarters. As to drains, unless they are scientifically designed, and, more important still, intelligently supervised, they are better dispensed with altogether.

VALUE OF A BIG STRAW YARD.

In planning an ideal stud farm, both with regard to stabling and paddocks, the architect should ever keep in view the desirability of convenient and labour-saving arrangements. Provided always that such arrangements are solely in the interests of the stock, and not merely for the convenience of the staff. If the author were invited to state the most desirable object to be kept in view in stud planning, he would promptly declare for a big straw yard. When during the Winter months the paddocks are frost-bound, or are greasy and treacherous from subsequent thaw, the stud groom regards with growing anxiety the heavy in-foal mares, the mares with young foals at foot, and the yearlings confined to their boxes for days, perhaps weeks. As the engine driver watches his steam gauge, ready, if necessary, to open the safety valves, so, too, the stud groom watches his charges daily growing fresher from continued inactivity, and longs for a safety valve in the shape of a roomy straw yard, where they might "blow off" their superfluous energy in safety. In showery weather, when brief bursts of sunshine are sandwiched in between drenching downpours, and when to turn mares and foals into distant paddocks would be courting a wet skin before the stables could be regained, the straw yard is once more a "boon and a blessing." When

the stud farm is situated in the heart of a hunting district, where the meets of foxhounds and harriers would necessitate the horses being closely confined to their stables at least twice a week, often on consecutive days, the straw yard again solves the difficulty.

During spells of bad weather in the short winter days, it will, at large studs, be found very difficult to get every animal out for a sufficient length of time in one sand ring, without giving way to the temptation to turn out too large a batch at a time. This shortage of straw yard accommodation can be very easily and cheaply overcome if kept in view by the architect when planning the brood mare boxes. The plan on page 4 shows the method to be adopted. The blocks of six boxes are erected in parallel lines. Two blocks of six boxes, each box 16ft. square, will form the sides of a yard 96ft. in length, a close-boarded fence 7ft. high connects the ends of the blocks, giving a yard 96ft. by 48ft., which is amply big enough for six mares to take exercise at one time. With a stud of 24 mares, under this arrangement, half the number can be at liberty at once, six in each yard. Double doors of 5ft. each are placed at either end of each yard to permit of the carting in or out of clean or soiled straw. Mares with foals can be let out singly for a fifteen-minute frolic, while their box is cleaned out. When a stud is thus equipped, frost-bound ground or a cold east wind have no terrors for the stud groom. It is most important to make sure that proper attention is given to drainage when the yard is under construction, and that each day after use the dung skip is sent round to collect all droppings. This last will entail only a few minutes' work daily, and will ensure a healthy playground for the stock.

The Corn Stores should be built in two storeys. On the upper floor the oats should be spread out in bulk, and kept

sweet and cool by constant turnings. The oats can be conducted through a shute to the grinding and mixing room below, passing *en route* through a dust-extracting machine, of which there are several efficient designs on the market.

The Men's Quarters, Saddle Rooms, etc., can safely be left to individual taste and ideas. The Hay Sheds or Dutch Barns, constructed of iron, are very convenient for storing the stud's hay and straw supply. Their use does away with the yearly rick-building, thatching, and cutting into trusses. They should be erected with an eye to their accessibility from the high road so as to facilitate carting operations, and to their being far enough removed from chimney stacks and the danger of flying sparks therefrom.

The Yearling Boxes should not be less than 14ft. square; 16ft. would be preferable, and straw yard accommodation should be arranged for on the plan adopted with the brood mare boxes.

HOSPITAL AND ISOLATION BOXES.

The Hospital Boxes should be erected at the furthest available point from the rest of the stud buildings. They should include a room for an attendant, fitted with a stove for heating water, for steaming nostrils, fomentations, and mash-making. This room should contain a medicine cupboard, and, more important still, a sleeping bunk for at least one man. It is of little use isolating horses amiss with contagious disease if their nurse is free to live and sleep with other men working amongst the rest of the horses. If there is direct access to the Hospital Boxes from the public road, so much the better. This will obviate the necessity of fresh equine arrivals crossing the farm to reach the isolation quarters. It is an open question whether the straw yards or the isolation boxes are the most effective weapons in the

stud groom's armoury for combating trouble amongst his charges. Certain it is that many a devastating epidemic of "coughing" has been nipped in the bud and prevented from spreading by the precaution of "quarantining" for a few days every new arrival before permitting it to mingle with the rest of the stock. Where "ideality" is sought regardless of cost, it would be necessary to have separate buildings erected at a considerable distance from each other to serve respectively as "Sick" and "Isolation" quarters. In the event of a fresh arrival developing fever in the isolation boxes, it would scarcely be wise or fair to instal the next arrival in the same block of boxes. Obviously the proper course to pursue immediately on the outbreak of dangerous symptoms would be to remove the patient to the actual sick quarters, and to submit the "isolation" box vacated to a thorough disinfection and fumigation before allowing another animal to occupy it.

While on the subject of isolation, the author would like to draw attention to a common practice which often places the stud groom in an awkward position. Some owners, when dealing with a barren mare that is on the list of a public stallion, keep the mare at home till she comes "in season." She is forthwith sent-off, and arrives accompanied with an intimation from the owner that she is quite ready for "service." The stud groom is at once placed on the horns of a dilemma. He is anxious to please the patron, and at the same time guard his employer's interests. He knows the mare is fresh from contact with dirty railway horse-boxes, steamers, and shipping company's stables. He knows that three or four days must elapse before he can be sure that the mare has come scathless through these hot-beds of infectious horse ailments, and he is equally aware that at the end of those four days the mare will in all probability be

gone off the "heat." With a valuable stallion under his control, can the stud groom be blamed if, under the circumstances, he elects to "play for safety," especially if reflection leads him to the conclusion that the tardy eleventh-hour arrival was not unconnected with a desire to save the cost of a week's "board and lodging."

Chapter II.

PADDOCKS AND PASTURES.

The Paddocks should practically be level or only gently undulating. Steep slopes are a prolific source of jarred joints and sprained shoulders in young stock, and are strictly to be avoided with mares that are heavy in foal. Thick, well-trimmed hedges of holly, thorn or beech, singly or in combination, form an ideal fence and wind-break. Where these do not already exist, the quick-growing Austrian pine may be planted in ground thoroughly prepared and manured, care being taken not to plant too closely together, to ensure that the trees shall be well "feathered" from the ground upwards. The paddocks should be of various dimensions. A few small ones of about half an acre at most, laid out adjacent to the brood mares' boxes, are almost indispensable during the foaling season, especially during January, February, March and April. The stud groom, even with paddocks of this small size, will often find himself wishing he could reduce their dimensions by one-half when he is apprehensively watching some mare, with foal at foot a few weeks old, recklessly careering round, revelling in her first unrestricted liberty since foaling; and this in spite of daily bouts in the sand ring and daily leading out. These small paddocks should be divided, either with rather low hedges or double fences, to admit of each mare seeing her neighbour in the adjoining paddock at close quarters without coming into actual contact. This proximity will serve to allay natural

maternal solicitude, restore confidence, and thus lessen the risk of a royal row when it becomes necessary to "double up" these mares and their foals, and remove them to more distant paddocks to make room for mares with younger foals that are ready to be turned out. This applies especially to "maiden" mares suckling their first foals.

The general idea that should govern the laying out of paddocks is that they ought to range in size from half an acre by regularly graduated steps to eight acres; the smallest being nearest the boxes, and the largest the furthest away. This ensures efficiency, and a saving of time and labour when the hours of daylight are few, the foals young, and the climatic conditions cold or wet, or both. As the days lengthen and summer advances, and the foals wax hardy and strong, the more distant, more capacious paddocks come naturally and, as it were, automatically into the daily plan of campaign. Nothing is gained by having paddocks of extra large size. A division of a forty-acre plot into four ten-acre paddocks would be preferable to an arrangement of two twenty-acre paddocks. For one thing, there would be less temptation to run too large a number of mares and foals together, a system which is not conducive to freedom from mishaps. But the chief objection to paddocks of extra large acreage is that their size adds to the difficulties inherent to the farming of grass land. Frequent changes of grazing ground is good for the horses and good for the land. With separate paddocks required for the barren mares, foaling mares, mares with foals at foot, yearling colts and yearling fillies; with this paddock requiring a dressing of lime, that basic slag, another farm yard manure, and still another requiring rolling and harrowing, it is obvious that the stud groom in charge of a 200-acre farm, divided into twenty ten-acre paddocks, has a better chance of "ringing the

changes" than he would on the same farm divided into ten twenty-acre plots.

QUALITY THE DESIDERATUM.

The management of paddocks opens up a very wide subject; a subject, indeed, on which volumes instead of paragraphs, could be, and have been written. If the author has learnt anything during his twenty-five years' experience of stud work, it is that the successful management of grass land is the most difficult of all the various branches of farming. To treat this subject exhaustively and authoritatively one would need to be a trained botanist, soil analyst and chemist. But a trained stud groom, possessing what has been called "the seeing eye," would be a disgrace to his calling if, after a quarter of a century of practical experience, he had not gleaned some knowledge of what constitutes good and bad pasturage. He might be at a loss for learned and technical terms to explain the causes of certain conditions of things, but his observation would at least have taught him to know the kind of soil horses do best on, and which particular grasses appeal to the equine palate. Horses reared on soils deficient in carbonate of lime, either in the shape of limestone, chalk, or limey clay, do not grow bone of the size, and especially the texture, desirable in aspirants to the highest Turf honours. Then, too, there are grasses, and grasses; it is the *quality*, and not the *quantity* that counts. The observant stud groom knows that the rich luxuriant grazing of river bottoms and fen lands are well adapted to the Shire horse, prized in proportion to the weight he can throw into his collar when loads are heavy, and city streets afford but treacherous foothold. He knows equally well, that it is the sweet, crisp, harder grasses of the uplands, with their

suitable subsoil and elevation, which are best calculated to produce the strong tough hoofs, ivory like bone, and lean muscular body of the equine racing machine.

The absolutely perfect horse pasture is so extremely rare that it may be said not to exist. The finer grasses may be present in great force, as also the coarser kinds, but the soil favours the latter, and gradually the finer grasses will be ousted. The influence of soil on herbage is a fact so well known to all whose work lies with live stock of any description as scarcely to need mention. In one enclosure, all the species of grass beloved by horses will be found in great profusion, while just over the dividing hedgerow they are conspicuous by their absence. Nay, is it not frequently the case that one end of a paddock is as different "as chalk from cheese" to the other as regards its herbage? The agricultural chemist would quickly ascertain, and state, the scientific reason for this, and, given a free hand as regards expense, could in a few years bring every paddock on a given stud farm, up to one standard, and that standard would be—perfection. But although the chemistry of the soil and its kindred studies may be a closed book to the average stud groom, there are still many ways in which he can strive to prevent deterioration in his paddocks, be they good, bad, or indifferent. Indeed, with perseverance and judgment, he need not despair of even bringing about an *improvement*. It would be an error, however, to suppose that the constituency of the soil is the *key* to the grass problem. Unskilful management of the grass on really ideal soil will soon reduce it to the condition of the herbage growing on soil of the very lowest grade.

Unless he has "eyes that see not," every stud groom knows that to such a discriminating feeder as the horse, all is not grass that is green. He is familiar with the

phenomena of almost bare patches in the paddocks to which the horses return again and again, totally ignoring the long, apparently luscious, grass with which these bare patches are surrounded. These neglected parts of the paddocks either contain species of grass which do not appeal to the fastidious taste of the horse, or, owing to the stimulating action of manure artificially applied, or of the excrement of horses and cattle roaming the paddocks, the growth is so rank that its flavour repels. Without troubling to probe into the scientific why and wherefore of this state of affairs, the dullest witted stud groom would get a glimmering of the dangers arising from over-manuring, and it might also strike him that the species of grasses that the horses so resolutely avoided would seed freely, and increase and multiply at the expense of the much grazed varieties.

The "ideal" that the stud manager aims to attain can be easily set down. It is to have every perch of the pasture on his farm, be its extent 100 or 1,000 acres, covered with grass of a quality, not such as he thinks the horses *ought* to eat, but which they *do* eat voraciously, and with every sign of enjoyment and profit. The difficulties arise when an attempt is made to set down on paper the methods whereby this desirable condition of affairs is to be attained. These difficulties will only really be appreciated after many years' practical experience of the problem. Questions of variations of soil, elevations, and the disconcerting vagaries of the British climate, make it impossible to lay down hard and fast rules applicable to all cases. It would be the merest presumption to write dogmatically on a subject which has occupied the minds and pens of able writers, who have made the subject a life-long study and speciality. The author must content himself with jotting

down a few recommendations, leaving the question of their value to the judgment of his readers.

HOW TO OBTAIN GOOD PASTURES.

The "ideal" horse pasture could, perhaps, best be obtained by taking arable land of suitable quality, thoroughly cleaning it of all weeds, and sowing it down with the finest horse grasses. But the disappointments which so often follow the operation of "laying down to grass," to say nothing of the long spell of waiting to get a good "sod," would not appeal to the stud master anxious to see his colours unfurled on the Turf without undue delay.

It is generally accepted that pasturage deteriorates more quickly under grazing by horses than under any other kind of stock. Their excrement has a more pernicious effect on the herbage, and their habit of confining their attentions to one or two particular species of grasses, to the exclusion of all others, facilitates the seeding and consequent increase of the latter, to the detriment of the former. The evils arising out of this inherent trait of "staling" or poisoning the land they graze on, can be minimised by extending the acreage allotted to each horse; but the problem of dealing with the coarser grasses shunned by the horses is rendered proportionately more difficult as the acreage allotted to each horse increases.

The ideal way to solve the coarse grass problem, would be that of using the mowing machine. But unfortunately the pursuit of ideals is often a very costly pastime, and when applied to grass-farming on a large scale, would generally be found prohibitively so. A stud of twenty mares would require 250 acres of pasture if the ideal system of "10 acres per head" were in force. While

200 acres were actually occupied by the mares, the remaining 50 acres would be in various stages of culture, such as being mown, manured, rolled and harrowed, according to their various requirements. With 250 acres of pasture to be kept in prime grazing condition it is obvious that the mowing machine would have to be pretty busy to prevent the grass in any paddock reaching the seeding stage. The cut grass would also have to be raked up and carted off to the compost heap, where it would be mixed with loam, road scrapings, lime, cow-dung, ashes from burnt hedge trimmings, etc. This compost heap, at the expiration of a couple of years, would be ready to be returned to certain paddocks as a *thin* top dressing, calculated not to force a growth of rank sour herbage, but to furnish an ideal root soil. The above plan, supplemented by a systematic and constant gathering and removal of the horse droppings, would go very near to ensuring "ideal" horse pasturage.

An alternative plan, less costly and proportionately less efficacious, would be grazing cattle and sheep with the horses. The theory underlying this plan, is that the cattle and sheep eat down the grasses rejected by the horses, and, incidentally, return to the soil manure less pernicious in its effect than that of horse droppings. An ounce of practice is said to be worth a ton of theory. Be that as it may, the author, after many years' observation, and with the courage of conviction, makes bold to say that the plan advocated by many accepted authorities of running horses, cattle and sheep simultaneously in paddocks, though perhaps sound in theory, works out very unsatisfactorily in practice. The simplicity of the plan is most alluring. The horses take the short sweet grass, the cattle the coarse herbage, and the sheep obligingly deal with weeds such as plantains and blackheads. But alas! in practice, the

cattle and sheep, both being equally as good judges of tasty herbage as the horses, combine their forces in an onslaught on the tasty grass *first*. From the stud groom's point of view the result is disastrous. The best herbage is soon eaten down, leaving the paddocks a patchwork of alternate spaces of close cropped and long rank grass. The horses and sheep stick doggedly to the sweet patches, the sheep nibbling as closely as rabbits; the cattle reluctantly turn their attention to the rank patches, not from choice, but because, owing to the shortness of the sweet grass they have great difficulty in getting their furred tongues round it, and tearing it off, and are therefore compelled by hunger to turn their attention to the longer but less tempting herbage. A paddock in this sorry plight is not conducive to a generous milk supply for the foals. Hence the stud groom's tears. It may be urged that the disease is simply overstocking, and the obvious remedy a reduction in the number of cattle and sheep. But a moment's reflection will show that such a remedy would not touch the root cause of the trouble, viz., the epicurean judgment of horses, cattle and sheep. Even if the number of cattle and sheep were reduced by one half, the remaining half would still pay solicitous attention to the choicest herbage, and the net result would be still larger expanses of the long and less palatable grass.

MOWING MACHINE OR CATTLE ?

I have already noted that the farming of grass land is the most difficult of all branches of farming; and the most tiresome problem connected with this branch, is the prevention and cure of this evil of coarse, unpalatable herbage. This condition of the herbage is caused either by the grasses running to seed, and becoming hard and devoid of juice,

or by excess of nutriment derived from manure, artificially applied, or the droppings of the previous occupants of the paddocks. In the former case, the cattle will eat the ripe seeded grass if compelled by hunger to do so; but in the case of the latter, will literally starve before they touch the rank black growth. This would seem to point to the necessity of stocking heavily enough with cattle, to ensure that none of the grasses reach the seeding stage, to keeping the cattle droppings scattered by hand labour as thinly and evenly over the paddocks as possible, and the immediate collection and removal of all horse droppings.

But a great many points will have to be considered, and most carefully weighed, before coming to a final decision about the relative values of the mowing machine and cattle, when applied to the problem of keeping a large acreage of grass from going to seed and consequently in prime condition for horses. Obviously, twenty mares on a 200 acre grass farm will keep only an infinitesimal portion of the herbage from reaching the seeding stage. It is equally clear that, thoroughly to succeed in doing this, a huge head of cattle will be required during the grass-growing months of May, June, July and August, and that this will entail the adoption of one of two equally costly systems. Either the necessary number of cattle will have to be bought when "keep" is beginning to get good, and sold when that keep is failing—in other words, buying on a rising market and selling on a falling one; or it will entail "wintering" the entire herd on hay.

If the question of cost is left out of consideration it is a case of "the mowing machine first, and cattle nowhere." The machine makes an absolutely clean sweep of the seeding grasses, and leaves never a "dropping" behind; while the cattle, unless they swarm like locusts

and are starving, will leave many a patch of seeded grass, and the paddocks will be thickly dotted with their dung, which means the following year bunches of rank, sour herbage that will be shunned like a pestilence. Seventy-five per cent. of the rough, distasteful grass common to pastures devoted to grazing purposes, whether of cattle alone, or in conjunction with horses, will, if investigated, be found to result from piles of excrement left undisturbed.

An alternative plan, to which the author confesses a strong partiality, is a combination of the mowing machine and cattle systems. This entails a departure from the usual practice of running the horses and cattle together, but has the advantage that it does away with the necessity of selling cattle at a sacrifice, or "wintering" them at heavy cost.

In the Spring, when the dormant pastures wake to life under the influence of April showers and the genial rays of the sun, the mares are given the earliest paddocks. As the season advances, and the growth becomes general in all the paddocks, the cattle are brought from their winter quarters, and allotted to certain paddocks, in sufficient numbers to ensure that they will be able *quickly* to graze them evenly and thoroughly over, while the growth is yet new and sweet. This accomplished, they are hurried off to perform the same office in other paddocks, before the growth gets too far advanced. After the lapse of a few days, to allow the cattle droppings to get "set," the vacated paddocks will receive the attentions of men, armed with long-handled shovels, who will scatter the droppings thoroughly, special pains being taken to ensure the breaking up of the manure into the smallest possible fragments, during distribution. Given genial weather, these paddocks will in a surprisingly short time, be reclothed with a

growth of short sweet herbage beloved by horses, a batch of which should be at once put into each of them. The paddocks these horses vacate will, by this time, be showing signs of the "patching" so characteristic of the grazing of horses. A liberal number of cattle should be put into each of these "patched" paddocks the moment the horses vacate them, to ensure these patches being eaten down before they grow too long and repellant.

The above routine should be zealously pursued so long as it is successful; but on a large acreage and with a fixed limit to the number of cattle, the action of sun and shower will gradually make itself felt, and the grass will eventually "run" clean away from the combined forces of horses and cattle. The stud manager will then have to put on his "thinking cap," and make many and varied calculations as to how many paddocks he can hope to keep in good grazing condition with the number of horses and cattle available, and how many he must "lay up" for the mowing machine and hay-making, with its subsequent useful aftermath. No useful purpose would be served by attempting to outline the routine to be followed. That must be done on the spot, and determined by the varying nature of climate, soil and general conditions on each particular farm.

It may be urged against taking a crop of hay off certain paddocks, that it would be robbing the soil of nutriment without making any return. But that difficulty is easily met, even if a supply of well rotted compost were not available. By stacking the hay in a corner of the paddock from which it was cut, and then feeding it to cattle in the Winter, every blade of grass would be consumed in the paddock in which it grew, there would be the same return of nutriment to the soil as if it had been grazed instead of

mown, not a blade would have ripened and shed its seed, and last, but not least, the "droppings" would be deposited when the grass was dormant and at its shortest, and they would consequently be more easily distributed by the harrows, and the winter rains would wash and cleanse away all taint before Spring growth started.

The theory of the return by the cattle, in the shape of excrement, of a portion of the nutriment they extract from the soil, is well founded. It would be equally excellent in practice, if the nutriment extracted from an area of, say, six square yards, were, when returned to the soil, distributed over the same area, instead of being *piled up* on a space of as many square *inches*.

The coarse grass problem is by no means solved if the stud manager, with a view to preventing the excessive accumulation of the obnoxious cattle droppings, stocks the paddocks very sparsely with cattle. The fewer head of cattle per acre results, in practice, in smaller patches of close cropped tempting grass, and larger patches of long uninviting herbage, during the most important months (from the herbage standpoint) in the racehorse's career, *i.e.*, the grass growing or suckling months. The difficulty of finding and collecting cattle droppings amidst long grass is patent, while the additional cattle that would be an absolute necessity in the Autumn to "clear up" the accumulated long coarse herbage, would have been more profitably occupied in the Summer months in producing larger patches of short tempting grass for the milking mares.

THE BEST CATTLE TO EMPLOY.

Although every stud farm requires to be managed according to its own particular conditions and requirements

there are a few general principles which are applicable to all grazing operations. Neither very poor nor very rich land is suited to the rearing of bloodstock. Of the two evils, the latter is more often responsible for the bloodstock breeder's disappointments than the former. Intelligent grazing and manuring will improve the poor pasture, but great care and trouble are required to ensure that the over rich pasture does not get richer, even under grazing operations alone. This much admitted, the most desirable class of cattle required is obvious. On the poor pasture, store cattle not less than two years old are wanted. These having practically finished their frame or bone-growing stage, will return to the soil, in their excrement, all the bone-forming elements they have taken from it. They will, therefore, not be robbing the land of an element so necessary to the foal or yearling. Furthermore, every pound of oil-cake fed to the cattle will add to their value, and to the improvement of the soil fertility of the pasture. On the other hand, when matured steers are put on the very rich pasture, they get so "forward" in condition, that the temptation arises to put a butcher's "finish" on them by a ration of oil-cake, with disastrous results to the already over-rich pasture. On the really "ideal" stud farm, *i.e.*, where the pasturage is neither too rich nor too poor, beef-cattle and cows with calves should find no place. With the beef-cattle, the oil-cake temptation is supplemented by that of moving them to a better paddock when they have polished off the short herbage and are showing a natural disinclination to tackle the long and coarser grasses, for fear they should "go back" in condition. The objection to dairy cows and cows with calves at foot is that the bone-forming elements the cows take up from the soil, are either taken to the city in the milk churns,

or go to form bone for the sucking calves, instead of being returned to the soil for the benefit of the young racehorses that are to be.

But as very few stud farms are blessed with "ideal" pastures, the question of manure cannot be quite ignored. The ideal plan of operations would seem to be to buy the required number of two year old steers in the Spring, and during Summer and Autumn never to lose sight of the fact that their *chief* rôle is to act as scavengers to the horses. When the last paddock has been bared of its refuse grass, retire them to the stalls or yards, to revel in oil-cakes, roots, and all the other items that comprise the stall feeding menu, till ordered to the slaughter house, leaving behind them a generous pile of rich manure, to be carted away to the compost heap, and there mixed with lime, wood ashes, loam, etc., to await the day when it should be applied in not too liberal quantity to some deteriorating paddock. The practice of winter stall feeding has the further advantage that it ensures that the paddocks are free of cattle during the season of the year when their presence would inflict serious and permanent injury to the pasture, owing to their "poaching" or trampling the dormant herbage.

As to sheep, they are out of place on a stud farm. Their natural habitat is on the mountains and the foothills, where the shorter-growing and sweeter grasses thrive. The horse, too, in a wild state favours the foothills, steppes, and bench land of the prairies, for the same reason. On the average stud farm the problem is what to do with the long coarse grass; the horses generally take care of the short. Putting a flock of such close nibbling animals as sheep on to a pasture would merely increase the difficulty of the problem. Again, the hill-loving sheep, when confined to small enclosures of rich land in any large number, is subject to a greater variety

of ailments, for its inches, than any animal the author can mention. In the early 80's, when an attempt was made to introduce sheep to the practically limitless acreage of the great North-West prairies of Canada, the cattle and horse ranchers were unanimous in their opposition, and possessed influence sufficient to induce the Provincial Legislature to issue an Order prohibiting the keeping of sheep except in properly fenced enclosures. These practical cattle and horse masters evidently did not anticipate any benefit accruing to the rich prairie grazing lands from the introduction of large flocks of sheep. By many this diatribe against sheep as an adjunct to stud farm management may be dismissed as the merest prejudice. The author is content to leave it so.

Chapter III.

MANAGEMENT OF FOALING MARES.

There is no arbitrary end or beginning, strictly speaking, to the year's work on a stud farm. Each phase overlaps the other, forming a complete cycle. A commencement may be made with the most important, and certainly the most anxious, time for the stud groom—the foaling season. Ability and intelligence applied at this period spell success, with its concomitant pardonable pride of the servant and satisfaction of the employer. It is the man whose whole heart is wrapped up in his profession, who is an enthusiastic lover of horses, who begrudges neither time nor labour in personal attention to minutest details, who will, as in all other walks of life, reap the fullest measure of success.

Parturition, or the act of bringing forth young, is, in the realms of untrammelled Nature, whether amongst the lower animals or the uncivilised human tribes, a comparatively simple and painless incident. It is only when the absolutely perfect plans of Nature have been obstructed and spoilt by man's stupidity, or well-meaning ignorance, that trouble and suffering ensue. For Nature invariably enacts a stern penalty where her laws are outraged. Therefore, if in our dealings with God's creatures we conscientiously and intelligently study the ways of Nature, and apply the lessons thus learned, so far as altered conditions and surroundings permit, we may legitimately hope to command in our efforts as full a measure of success as it is in the power of imperfect mortals to attain.

In Volume XXI. of the General Stud Book, it will be seen that the average number of barren mares each year is about 33 per cent., a truly formidable total when one realises the bitter disappointments and financial losses entailed. Among the horses on the prairies of Canada, when the stallion and his harem have roamed free and unfettered all the year round, 5 per cent. would be a liberal estimate of the proportion of barren mares under such natural conditions. It goes without the saying that every employer and servant would gladly see this gulf between 33 and 5 per cent. bridged, or at least curtailed. May not a comparison of the life led by the prairie-roaming mare with that led by the fashionably-bred matron on a modern thoroughbred stud farm throw some light on the problem why one is so much more prolific than the other?

NATURE'S METHODS.

Speaking broadly, it is fair to say that Nature plans that *all* young shall be brought forth at a season when food for its sustenance is plentiful. That is when the Spring sun sheds its life-giving warmth on the newly born, nurtures the milk-producing herbage for the herbiverous animals, and causes the tender shoots and buds to burst forth for the support of the grub and insect, which in turn furnish food for the young bird in the nest. Clearly, then, when man arranges that a foal shall be dropped in January, when frost, snow and searching winds prevail, and all herbage is dormant, he outrages one of Nature's elementary laws. May not the high percentage of barren mares be one of the penalties he pays for his interference? Close observation of horses under natural conditions certainly tends to confirm this view. The prairie-roaming in-foal mare is seen in January winning a bare sustenance, mid frost and snow and scanty

sun-cured prairie grass; very low in flesh, but withal healthy and bright of eye, with her nine months' old foal still taking toll of her fast diminishing milk supply. This double strain of short commons and milk production throughout the winter months, has the dual advantage of keeping the fœtus in the womb small, and the mare's generative organs and the pelvis, through which it is eventually expelled, unencumbered with layers of unyielding fat, with the result that parturition is swift, easy and practically painless, and the generative organs are left in a suitable condition for subsequent impregnation.

When we contrast the foregoing with the system pursued with the thoroughbred mare on the stud farm of to-day, we find much food for reflection. The thoroughbred matron has her foal weaned, at the age of four or five months, in July or August, after which she revels in good herbage till late Autumn, with its cold nights, arrives. She then sleeps in her warm well-bedded box, is fed on the best of oats and hay, and naturally waxes fat and jolly, and the foal she is carrying, participating in the good things going, grows to an unnatural size. Are not all the elements of disaster here? The mare's generative organs are overlaid with masses of hard unyielding fat and the foal is abnormally large. In place of the quick, easy parturition in genial sunshine, we get prolonged, fierce straining, tearing of tissues, hæmorrhage, and bruising of the mucous membrane, in the dead of Winter, with the risk of chill and subsequent inflammation and leucorrhœa. Under such conditions is it surprising that the mare's visit in a few days' or weeks' time to the stallion, and all subsequent visits that season, are fruitless, and the return in the Stud Book is the sadly too prevalent one of "Barren to ————." The old Yorkshire saying, "The straw-yard bull gets the most calves," neatly

hits off the evil of high feeding. Another case in point is the rural labourer's "better half," who, with all her never-ending domestic drudgery, on the plainest and often scanty food, is continually presenting her "guid man" with an addition to his already overflowing "quiver."

At the risk of laying himself open to the charge of being biassed in favour of his own profession, the author gives it as his conviction that the stud owner is usually more to blame than the stud groom for the prevailing state of affairs. How many owners are there who grumble at their stud grooms because their mares are looking *too* well, *i.e.*, fat and sleek; and, on the other hand, quickly express dissatisfaction at seeing ribs showing prominently and quarters devoid of fat? Who is not familiar with the spectacle of the poor farmer's mare, with her woe-begone, half-starved appearance, who produces a foal each season with clocklike regularity?

IMPORTANCE OF "CONDITION."

Bearing the foregoing facts in mind, the treatment of the in-foal mare may now be considered. As mares differ considerably in constitution and temperament, no cast-iron inflexible rules and regulations can be laid down. Each animal must be treated according to its particular requirements, as the stud groom's observation and common-sense may direct. His aim should be to keep each mare in the very pink of *breeding* condition. He must first, last, and all the time realise that the sole function of each brood mare is to be a machine for the production and rearing of young, and that the mare which everyone acclaims as "looking splendid" may for that very reason be in the very worst condition for performing the maternal function; while the mare whose condition may draw uncomplimentary remarks from unthinking critics may yet be in an ideal state

for reproducing her species with unfailing regularity. It is, perhaps, hardly necessary to point out the danger of going to extremes. It must be borne in mind, that the modern thoroughbred mare is the descendant of ancestors that for close on two centuries have led a pampered artificial life, and it would simply be courting disaster to take the Stud Book matron from her present environment and leave her to her own resources on the slopes of the Rockies, or the steppes of Russia. Nor must the fact be entirely lost sight of that the mare's progeny will probably be required before it is twenty-four months old to carry a nine-stone man at racing pace over a distance of five furlongs, on the race-course. It should be patent to the meanest intelligence that because the "fat as butter" mare is held to be in an actually dangerous condition for performing the function of parturition, it does not follow that the matron who is ill and weak from starvation is in a desirable state.

The Winter treatment of the in-foal mares should be based on the foregoing theories. They should have roomy, well-ventilated loose boxes to shelter in at night. Too much care cannot be given to regulating the temperature of the boxes to meet the fluctuations of wintry weather. More coughs and colds originate in boxes too warm than in boxes that are too cold. The change from a warm loose box to an exposed paddock on a winter's morning is a very trying experience. Let the reader imagine himself in a hot, crowded theatre, where the light, warmth, and music almost convince him that he is in reality in the sunny climes depicted on the stage. When the performance is ended, and he emerges into the wintry night, is not the contrast almost startling in its suddenness? If, by mischance, his top-coat had been forgotten, the result might easily be very serious. The mare has no top-coat, and often the friendly shelter of a

thick wind-proof hedge is lacking. Regular exercise is very essential to the well-being of the in-foal mare, and this can always safely be given (except during cold rains, thick fog, snow storms and severe frost) if care is taken to regulate the temperature of the sleeping quarters. No fixed rules can be given that will fit the different circumstances that may prevail as regards structure and situation of stabling; the groom must use his judgment as to what is required. There is reproduced opposite a photograph of a block of well-ventilated boxes. Their design renders the regulation of ventilation quite easy, no matter whether a blizzard or a heat wave prevails.

EXERCISE AND FOOD.

As to exercise, a big effort should be made to get the mares turned out *every* day in the year. This not only promotes health, but lessens the risk of accidents, which are likely to occur when a number of mares are let loose after a few days' close confinement to their boxes. But there are conditions of weather which make it advisable to choose the lesser of two evils. Thus in very thick fog there would be the risk of mares colliding. In heavy rain, accompanied with a cold driving wind, it would be asking for trouble to evict the mares from their dry, snug boxes. During a heavy snowfall, both the foregoing dangers arise. On the other hand, the author would not hesitate, after the snow had ceased falling, to turn mares out for a couple of hours' exercise, even in a foot of snow. In dealing with frost, the groom's judgment must be exercised. In the case of what is known as a "white" frost, *i.e.*, when the herbage is covered with rime, there is a risk of mares getting colic from eating it. With "black" frost, *i.e.*, when the paddocks are hard and dry and free from "rime,"

WELL-VENTILATED BOXES [*Photo, Newnham.*

at Tully Stud, Kildare.

Face p. 36.

the mares, provided they have not been confined to their boxes the previous day or two, may safely be let out, as they are too intelligent to gallop on the jarring ground. But they must be got in before the sun has had time to act on the paddock, when the greasy surface and the "bone" underneath constitute a veritable death trap. As hinted in the previous chapter, the stud groom whose equipment includes plenty of straw-yard accommodation has a big advantage over his less fortunate confrère. The former escapes the perplexities and anxiety, and the necessity of taking risks which beset the latter in bad weather. In the absence of straw-yard accommodation, leading the mares out in pairs for fifteen minutes, and longer if the number of staff employed permits, would be time well spent from a health point of view. From the foregoing, it will be gathered that the author attaches great importance to exercise, both as a promoter of health and a preventative of accidents.

With regard to food, the stud groom must be guided entirely by results. As the trainer aims at racing condition, so, too, must the stud groom ever strive for *breeding* condition. Three pounds of good bruised oats, mixed with two pounds of scalded bran and fourteen pounds of hay daily, will be found ample in most cases. The oat ration may be increased or dispensed with altogether, according to each individual mare's progress. On most stud farms during the winter months, grass is conspicuous by its absence. To prevent constipation of the bowels, sliced carrots daily and linseed mashes twice weekly, will be found very efficient substitutes. A lump of rock salt, in a convenient bracket in each box, will also help towards the desired result.

As the time approaches for the mare to foal, care should be taken to prevent sudden frights and violent galloping. The unexpected discharge of a gun in close proximity,

hounds in full cry, a band playing, are common sources of stampedes and subsequent trouble. It is a good plan, where a large number of mares are kept, to divide the mares early in the Autumn into convenient sized groups, according to their expected dates of foaling. Thus the January and February mares would make one batch, March and April mares another, and so on. The full benefit of this arrangement will be reaped after the mares have foaled, and they and their young are turned out in parties in the paddocks, for, if the mares have been running together, there will be little risk of quarrels and injured foals. When, under this system, it happens that all the mares save one of a particular batch have foaled, and she refuses to settle down by herself in her paddock, but gallops about fretting and calling for her last companion, it is safer to have her kept up and led out daily for exercise, than to put her with another batch of mares. They are certain to resent her intrusion, and she is likely to receive, or inflict, injury.

Chapter IV.

FOALING TIME.

The mare generally brings forth her foal eleven months after conception. Thus a mare served on April 1st should foal about March 1st the following year; but some mares invariably go over their time. Others do the reverse, while young mares, carrying their first foal, are very uncertain in this respect, but are more likely to anticipate their proper date than otherwise. The author has also noticed that mares that have been on very short rations during the winter, and have got undesirably low in condition in consequence, almost invariably exceed their time for foaling by periods varying from one to three weeks. On the other hand, a mare that has wintered not wisely but too well, generally foals promptly to time, or several days in advance of it. *All* mares should be closely watched for the usual signs of approaching parturition when they get within a fortnight of their expected date of foaling. Usually about four weeks before the mare foals the udder commences to "spring" or fill at night, but subsides during the day while the mare is at liberty in the paddock. As the foaling time draws nearer the filling of the udder increases, and exercise has no effect on it. The penultimate stage is marked by the sinking in of the quarters on each side of the croup, swelling of the vulva, and the appearance on the end of the teats of little nodules of wax-like substance. After from twenty-four to forty-eight hours, this "wax" drops off, and milk begins to drip away. Once this occurs the mare may foal at any

moment, and should be kept under the closest observation. It should be noted that some mares, especially "maiden" mares, foal without previously "waxing" or losing milk. Some mares are extremely frightened of a light carried into their box. In such cases, if the periodical visits of the night watchman during the fortnight preceding their expected foaling fails to overcome this nervousness, it is a wise precaution, when all the signs point to a mare foaling during the coming night, to light the gas, or whatever illuminant is used, before darkness sets in.

IMPLEMENTS AND DRUGS REQUIRED.

It is of the utmost importance that scrupulous cleanliness be observed in every detail of the actual foaling operations. The foaling box should previously have been thoroughly disinfected and bedded down with a generous supply of absolutely clean straw. The following list includes all the articles likely to be required by the stud groom in ordinary cases:—Pair of strong curved trimming scissors, a skein of catgut ligature, two Atomizing Sprayers, Camel Hair Brushes, Pot of Vaseline, Box of Glycerine Suppositories, one Enema Pump (Human Size), Bottle of Glycerine, Bottle of Chlorodyne, Phial of Chinosol Tabloids, Cake of Carbolic Soap, one Feeding Bottle with large teat, an Electric (Dry Battery) Hand Lamp, and a bottle of each of the following navel dressings:—

No. 1.	Rain Water	1¾ pints.
	Iodine	31 grains.
	Iod. of Potassium ...	62 grains.
No. 2.	Methylated Spirit ...	1¾ pints.
	Iodine	31 grains.
No. 3.	Collodion and Iodine ...	1 per cent.

(*Professor Nocard*).

Three useful auxiliaries to the above list are a snaffle bridle, a twitch, and a long web lungeing rein. (See Note on p. 56.)

The usual symptoms of approaching labour are that the mare shows excitement, pacing uneasily round and round the foaling box, breaks into a profuse perspiration, paws the ground, gazes round at her flank, lies down and gets up again repeatedly, and passes small quantities of urine. Care should be taken to regulate the ventilation while the mare is perspiring and in a heated state. After she has foaled and is lying quietly, she will cool off very quickly, and the cold night air rushing through an open window or ventilator might easily cause a chill, developing into pneumonia and other kindred ailments. When the unmistakable symptoms of the near approach of parturition appear it is well to prepare a mash for the use of the mare later on. Take three pounds of bran, a double handful of crushed oats, into which thoroughly mix a table-spoonful of bi-carbonate of soda. Pour sufficient *boiling* water on this to make it nicely moist but not sloppy, cover up and let stand till required. The use of the bi-carbonate of soda is recommended because of its beneficial effects on the mare's inflamed mucous membranes, and as a curative and preventative of diarrhœa in the foal, through its action on the mucous membrane of the intestines.

Some mares, especially those of the Galopin tribe, exhibit great excitement hours before actual labour begins; others make no sign till within half an hour of parturition. One exceptional case noted by the author was that of a daughter of Galopin, who paced rapidly round the foaling box, with only the briefest pauses, during the whole of one night and following day. The second night was far spent before labour pains commenced, and the foal was delivered in about ten minutes. The mare must have walked many

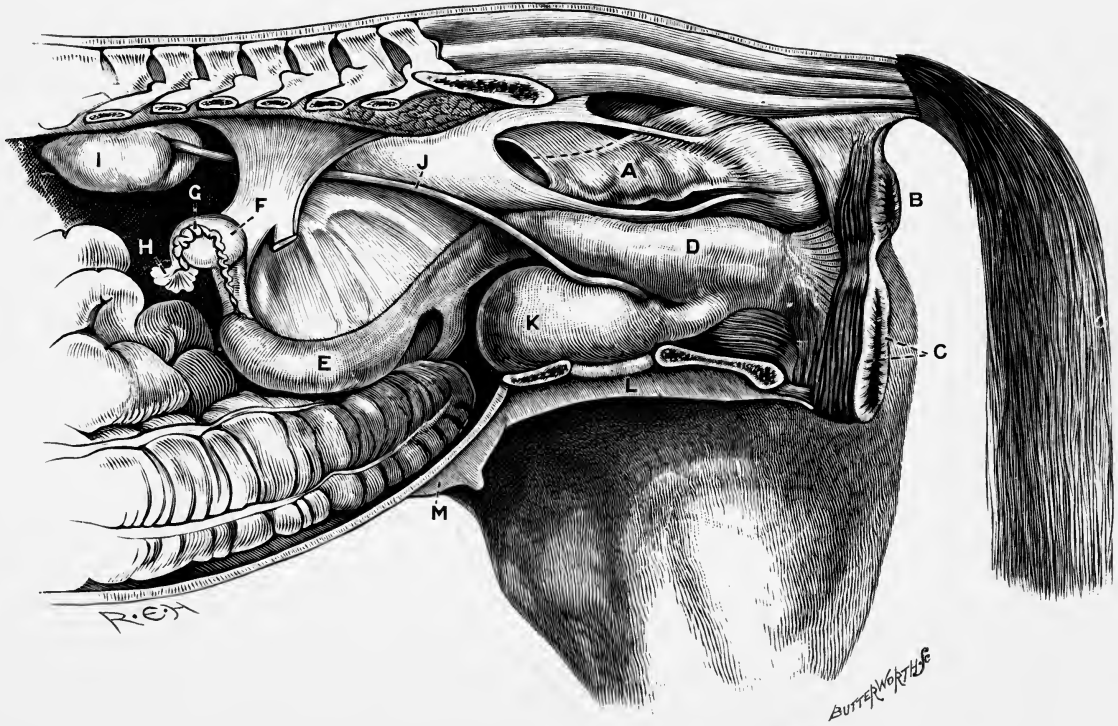
miles during her period of restlessness, and the straw bed was ground by her hoofs into chaff in a well-defined circular pathway.

From the foregoing it will be gathered that much depends on the idiosyncrasy of each individual mare as to the length of this prelude to laying down to foal in earnest. During the actual foaling process there are short spasms of straining and heaving to expel the foal. First appears the end of the membraneous sac in which the foal is enclosed, then the fore feet, followed by the nose and knees, each series of spasms bringing forth head, neck, shoulders, and finally the entire body. It reads simplicity itself, yet in no other of the stud groom's manifold duties is he called upon to exercise the same coolness, calculated judgment, and prompt action. Experience and intelligence alone will teach him when to act swiftly, and when to wait patiently and confidently.

The accompanying illustrations will give a useful idea of the anatomy of the mare's generative organs and pelvis. It will readily be understood that the neck of the womb (Os Uteri), the vagina, and vulva being constructed of tissue possessing great elasticity, will render the least resistance to the passage of the foal when they are unimpeded by accumulations of fat. The pelvis, being a semi-solid hoop of bone, constitutes the whole crux of the matter. Once the deepest part of the foal's body, that is from top of the withers to elbow, is through this, the most constricted, part of the passage, the rest is comparatively easy.

FOALING OPERATIONS.

Having thus briefly explained the principles of the subject, the practice to be followed during foaling may now be considered. When the "water-bag," or membraneous sac,

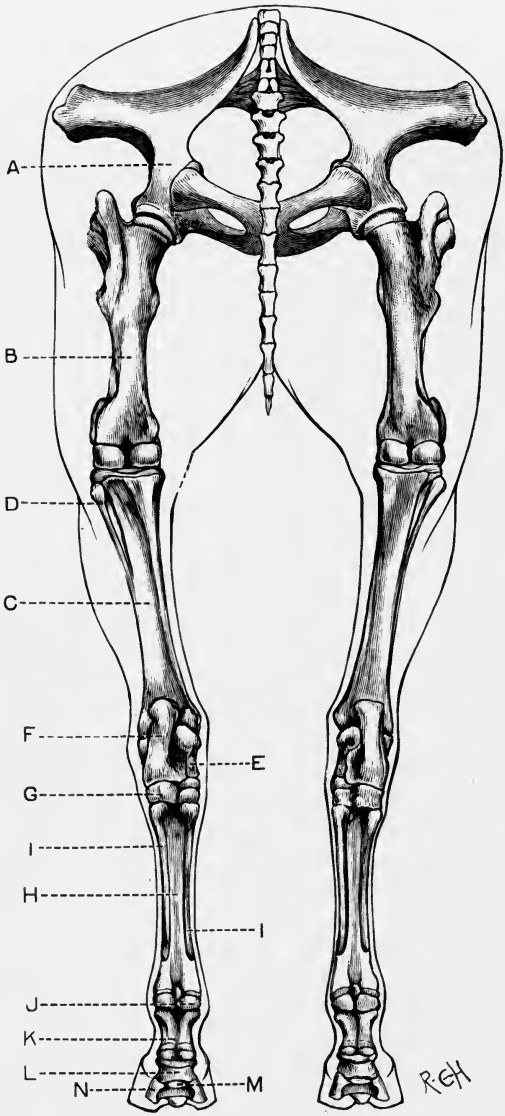


VIEW OF THE GENITO-URINARY ORGANS OF THE MARE.

A, Rectum. B, Anus. C, Vulva. D, Vagina. E, Left Horn of Uterus. F, Ovary. G, Fallopian Tube. H, Its Fimbriated Extremity. I, Kidney. J, Ureter. K, Bladder. L, Pelvis. M, Mammary Gland.

This illustration is taken from the late Professor Wortley Axe's book, "The Horse," and is reproduced by permission of the Gresham Publishing Co.

Face p. 42.



POSTERIOR VIEW OF PELVIS AND HIND LIMBS OF HORSE.

A, Pelvis. B, Femur or thigh-bone C, Tibia or lower thigh-bone. D, Fibula. E, Astragalus. F, Calcaneus, forming point of hock. G, Cuboides. H, Large metatarsal or cannon-bone. I, I, Small metatarsal or splint-bones. J, Sesamoid bones. K, Os suffraginis or large pastern. L, Os coronæ or small pastern. M, Navicular bone. N, Os pedis or Foot bone.

This illustration is taken from the late Professor Wortley Axe's book, "The Horse," and is reproduced by permission of the Gresham Publishing Company.

Face p. 43.

shows through the vulva, the attendant should gather up his tools and enter the mare's box, quietly and without fuss, speaking soothingly and encouragingly to the mare. Three lengths of the catgut ligature, each twelve inches long, should be held in the teeth; two only will be required, but it is well to have a third in reserve, in case one should by mischance be dropped in the straw. The scissors should be in the vest pocket, secured to the person by a stout string, about a yard long. The electric lamp and the atomizer containing No. 1 Mixture (page 40) will complete the necessary outfit. The attendant's hands and finger nails should have been previously thoroughly washed with carbolic soap, and the scissors immersed for a few minutes in a solution of Chinasol (one tabloid to each pint of hot water). Dropping on to one knee behind the recumbent mare, the attendant will quietly await developments. As the mare strains, first one and then the other fore foot of the foal appear. These should be with frogs downwards. In the author's apprenticeship days he was always instructed to keep the two fore feet travelling *evenly* together during the propulsion of the foal. But he was at last struck by the fact that in nine cases out of ten one fore foot was presented in advance of the other; and, furthermore, that while the leading foot was steadily expelled, the other remained practically stationary, as though jammed. The almost invariable recurrence of this phenomenon, and the force required to pull the laggard leg forward, at last caused him to reflect whether it was not some well-ordered provision of Nature, instead of mere coincidence. From subsequent observations he was forced to the conclusion that the true explanation was to be found in the former thesis. The pelvis (see opposite) is a jointed, irregular hoop of bones, the rigidity of which is assured by various attachments of very stout ligaments. That part of

the foal's body which would experience the most difficulty in passing through the pelvic hoop would be its fore-quarters, comprised of the humerus, scapular, etc. Unlike the pelvis, these bones are not rigid, but capable of a variety of movements. As they are in duplicate, viz., one set on the near and the other on the off side, it follows that their negotiation of the pelvic hoop will be greatly facilitated if they are presented alternately instead of simultaneously. If the foregoing hypothesis is correct, it also follows that to endeavour to keep the foal's feet level during the first stages of parturition is wrong in theory and practice.

As labour proceeds, the appearance of the feet will be quickly followed by that of the nose and finally the entire head of the foal. So far progress will have been rapid and easy. Now comes the critical stage; the foal's shoulders have reached the pelvis and neck of the womb. The mare strains with great violence, groans, and breathes stertorously, but the foal remains stationary, tightly wedged in the pelvic circle. The mare ceases her straining. The novice may be excused if he now becomes anxious and apprehensive, for many an old hand, who has not studied the anatomy and pathology of the subject, acts at this stage absolutely at variance with the dictates of common-sense. The particular muscles which are brought into play to eject the foal possess enormous power, and when it is realised that the neck of the womb in its normal state will only just admit one's finger, and that it is encircled with a more or less rigid hoop of bone and cartilage, it will readily be understood how great is the ejectory power required to force a large body through such a comparatively small aperture. The muscles controlling the neck of the womb, although capable of great expansion, are also capable of great resistance, and only yield to prolonged force, when a species of cramp or

paralysis supervening allows the passage of the foal to take place. If, then, a powerful twelve or fourteen-stone man, in his well-meant efforts to assist the labouring mare, grasps the foal's legs, and adds his strength to the mare's desperate heaving before the resisting muscles have become inert, he is courting disaster. True, the foal is born, but a bad tear or slit results, which may probably endanger the mare's life, and will certainly jeopardise her future breeding possibilities.

THE MOMENT FOR ACTION.

It is impossible to lay too much stress on the desirability of allowing the mare to foal by her own unaided efforts, if the presentation of the foal is normal. The mare will cease heaving the instant that instinct tells her that tearing of tissue is imminent; and after allowing time for the resisting muscles and ligaments to become inert, will try again with the happiest results. Nature's plan is beautiful in its simplicity. Parturition, as mentioned above, consists in short spasms of heaving, alternated by short periods of rest. Each few inches gained is followed by a brief respite to allow muscle paralysis to supervene. Once the foal's shoulders are through the pelvic outlet, which welcome fact will be made known to the attendant by the sudden spurt with which the foal slips forward, he may render assistance with impunity. The danger zone is then safely passed. It is advisable, however, not to drag the foal quite clear of the mare, and also to avoid rupturing the membraneous sac in which the foal is enveloped. The former plan may deceive the mare into thinking that parturition is not completed, while the latter will prevent premature sneezing and whinnying on the part of the foal, and thus will lessen the chance of the mare struggling to her feet before the navel cord can be properly

ligatured and severed with the scissors. Apart from this latter reason, considerable importance attaches to keeping the enveloping sac intact. Once the nostrils are uncovered, the foal takes in air through them, the lungs are expanded, and the foal may be said to start its separate existence, and in case of delivery being unduly prolonged, there is risk of suffocation from pressure of the mare's pelvis on the foal's ribs.

The author's practice is to leave the foal's hind legs within the vagina up to the stifles; then, with the fingers, swiftly to slit the enveloping membrane, simultaneously freeing the nostrils and exposing the navel cord; switch on the electric lamp, place it where its rays fall full on the navel, take one ligature from between the teeth, tie very tightly round the navel cord about an inch from the foal's belly; take another ligature and tie about three inches nearer the mare, with the scissors cut the cord between the two ligatures, seize the atomizer, hold the severed stump in one hand, and spray it well with Solution No. 1 with the other. Take the foal by the two fore legs, drag it completely out of the mare and round to her head, with its back towards the mare, so that she cannot lick the dressing off the navel. Allow a minute for No. 1 Solution to penetrate, then quietly enter the box and apply No. 2 Solution in the same way. When this has evaporated, which it will do in a couple of minutes, have an assistant (with well-disinfected hands) to help in painting on No. 3 Solution. Turn the foal over, with its belly facing the mare, so that she can continue to reach and lick it, which occupation will probably deter her from scrambling to her feet. Let the assistant grasp the foal's stifle in his right hand and the severed stump in his left; the chief operator places his knee on the fleshy part of the foal's neck, leaving both hands free, one to hold the

bottle, and the other to paint a liberal coating of Solution No. 3 on the severed stump. Turn the foal over again, so that the mare can just reach its back with her tongue, but not the freshly painted cord, then come away and leave them undisturbed.

WHEN HÆMORRHAGE IS EXCESSIVE.

The longer the mare lies quiet the better. More especially is this desirable in cases of excessive hæmorrhage during and immediately after the passage of the foal, caused by the rupture of small blood vessels. If the mare will only oblige by lying perfectly still, the ragged ends of the severed vessels will have a chance of curling inwardly on themselves, thus forming a temporary plug, which, aided by the fast coagulating blood, will serve to arrest hæmorrhage till such time as reparative action can be completed. It is advisable in cases of excessive hæmorrhage that, after the navel cord has been cut, and the foal taken round to the mare's head, all further dressings of the navel should be dispensed with, so as to avoid the necessity of going into the box again, and probably causing the mare to struggle to her feet, and so aggravating the bleeding. The author has followed the above plan with success for many years in cases where the volume and character of the hæmorrhage have denoted ruptured blood vessels. It will be noted that in the foregoing detailed description of a mare foaling, it is assumed that she will be delivered while lying down. *Apropos* of this, the author, when reading Professor Wortley Axe's book, "The Horse," was rather surprised to find it stated (Vol. 8, pp. 270-271) that "the foal glides gently down over the mare's hocks, if she is standing—which is generally the case —and falls softly on to the ground; the navel-string (*umbilical cord*) is nearly always torn through during this

descent of the foal." And, again: "Sometimes the mare, from debility or other cause, foals while lying down." These two statements are so utterly at variance with the author's experience, that he is at a loss to decide, in view of Professor Axe's eminence in the veterinary profession, whether the Professor is mistaken, or the author's experience is unique. Although no actual record has been kept, the author has officiated at not less than 400 foalings, and in one solitary instance only has the foal been expelled while the mare was standing up—cases of malpresentation always excepted. This solitary instance, curiously enough, in view of the second quoted statement of the Professor's, was the result of debility in the mare, and occurred no later than May, 1911.

The particulars of this case are, perhaps, worth quoting in detail. A month before she was due to foal it was noticed that the mare, a four-year-old filly carrying her first foal, experienced great difficulty in regaining her feet after a roll in the paddock. The trouble seemed to be loss of power in the loins and hind quarters. She had full use of her fore part, but would sit up on her haunches like a dog, and only got her hind quarters off the ground with great efforts, and after many failures to do so. She was kept under close observation by the night watchman for the ensuing three weeks. That functionary reported each morning that the mare had not lain down, but had slept standing up, with her hind quarters against the wall of her box. However, just a week before the mare was due to foal, the author was called up during the night to learn that the mare was down in a corner of her box, and knocking herself about in her futile efforts to get up. By the united efforts of eight men and a sharp application of the whip, she was eventually got on to her legs. She made no attempt to lie down during the next

few days, and, needless to say, her approaching parturition was awaited with much apprehension. Prompt to time, and after all the usual preliminary symptoms, labour pains commenced. At each throe the mare shaped as if she would lie down, but seemed to recollect the previous difficulty she had experienced in getting up, and thought better of it. When it became apparent that the mare would be delivered standing, one assistant went to her head, another slipped on his linen apron, and caught the foal in his arms as it was finally expelled from the vagina, holding it thus while the author swiftly ligatured the navel cord in two places, severed it between the two ligatures, and ordered the assistant to take the foal round to the mare's head and deposit it gently on the straw. The mare's subsequent progress was satisfactory, except that it was fully a fortnight before she ventured to lie down for a much-needed rest.

The author has many times seen a ranche mare foaling in a corral, surrounded by a circle of deeply-interested companions; and in every case, in spite of embarrassing attentions, the foal was expelled while the mare was down. Although the question whether lying down or standing up is the natural and usual position for the mare to assume may be considered a trivial one, it is clear that the lying down position is the one most conducive to efficiency in foaling operations for at least two good reasons. Firstly, when it is remembered how frequently the navel is the "port of entry" of infection, it naturally follows that if the navel-cord can be tightly ligatured before it is severed, the chances of microbes and bacilli gaining admission to the foal's system are much fewer than when the navel-cord is ruptured by the foal dropping from the standing mare on to the more or less unclean bedding, with which the unligatured bleeding arteries in the stump come in contact. Secondly, in the

case of an abnormally thick navel-cord, the severe drag which would ensue before the weight of the foal ruptured the cord would be highly conducive to an umbilical hernia. In effect, the author's experience has been, that in health the mare lies down to foal, in debility she stands up. Professor Axe's experience would seem to have been exactly the reverse.

THE NEW-BORN FOAL.

The newly-born foal will at once commence struggling and sprawling about the box, thereby developing strength in its muscles, ligaments, lungs and other organs, preparatory to struggling to its feet and looking for its supper. If the mare will lie quietly watching its futile efforts while she gains strength, and the generative organs and blood vessels recover from the great strain they have undergone, so much the better. With this end in view, avoid entering the box unless absolutely compelled so to do. If the foal in its sprawling gets wedged into a corner of the box, where it is helpless, it must, of course, be hauled out. If on the other hand it should become entangled amongst the recumbent mare's legs, ninety-nine times out of a hundred it is wisest not to interfere. Even in the young mare the maternal care and instinct are wonderful; she will either lie quite passive till her offspring flounders out of danger, or deftly get up and avoid treading on it in a miraculous manner. If the over-anxious attendant, thinking to assist, enters the box, the chances are the mare, mistaking his kindly motives, will scramble hurriedly to her feet, thus causing the accident which almost certainly would not have occurred had he preserved a "masterly inactivity."

On the same principle, do not enter the box and worry the mare with water or mash so long as she will lie quietly

recuperating. If the mare gets up and has no symptoms of pain, and the foal looks like being some time in getting on to its legs, she should have half a bucket of chilled water and the previously-prepared warm mash. With "maiden" mares it is as well not to distract their attention wholly from their first-born with food or water till it has been up and sucked *once*. The membranes or "after birth," if dragging on the ground, should at once be tied up in a loop knot, so that it hangs on a level with the mare's hocks; this obviates the danger of the foal lying upon, or later stepping on it, and breaking it off, or, worse still, violently detaching it from the wall of the womb, with very serious results to the mare. What are called "after pains" at this stage frequently cause anxiety to the attendant. They are generally caused by the neck of the womb contracting after the abnormal expansion it has undergone during the passage of the foal, or in cases where the tissues have been actually torn. The symptoms are similar to those of colic; the mare paws, lies down, rolls, and gets up again. Some mares are more stoical under pain than others. The attendant who knows the temperaments of his charges will be able to gauge the severity of the trouble from this knowledge.

When "after pains" are present, and the mare is content to lie still, making no attempt to roll, leave her undisturbed; the pains will gradually pass away as the organs regain their normal state. But if the mare rolls violently, sweating and blowing, she must be secured at once, as the rolling may bring labour on again, and the much-to-be-dreaded mishap, an inverted uterus. Two ounces of chlorodyne in 1½ pints of water will generally act like magic. The author has found its sedative action most valuable in these cases. It may be here noted that in cases of severe hæmorrhage, caused by the bursting of a large blood vessel,

the deadly leakage goes on without any of the violent colicky pains, nor is there any abnormal flow of blood from the vulva. The blood forms a large clot in the uterus, and the first symptoms of trouble are generally the last, viz., cold perspiration and trembling, quickly followed by convulsions, and death from heart failure.

MALPRESENTATIONS.

In the foregoing the bright side of foaling operations has been pictured; the darker side, which even the best regulated studs do not escape, may now be briefly touched upon. The most common cause of trouble is wrong presentation of the foal. As previously noted, the proper way for the foal to arrive is fore feet first, head between knees, and belly downwards. If the attendant finds, after labour has been in progress some few minutes, that, in spite of extra efforts on the mare's part, only one leg is coming, he should watch closely, and if, when the knee is through the vagina, there is no sign of the other hoof, he should at once roll up his sleeves, well vaseline his right arm and make an internal examination. If he finds the foal's nose just inside the vulva and the missing hoof close by, he should seize the latter, and, timing his efforts to the mare's heaving, endeavour to bring it forward. If he finds it yield, he should persevere, using as little force as possible, till he has it level with the leading knee, and then leave the mare to finish unaided. But if he finds it impossible to bring the laggard hoof forward, he should, while still retaining his hold of it, place his left hand on the protruding leg at the knee, and push it back into the vagina, when he will probably be able to bring the other foot forward to its proper position, and all will end well, and he will be able to thank his stars that his examination revealed nothing more serious.

"In cases of difficult parturition in the mare, much skill, adroitness, patience, and resource, as well as physical strength and agility, are required in dealing with the very numerous and diverse obstacles that have to be encountered and overcome if the lives of the foal and mother, or either, are to be saved. More especially are judgment and manual tact required in making an examination. This demands not only a thorough knowledge of the internal anatomy of the mare's generative organs, healthy and pathological, but also an acquaintance by touch with all the surface and different regions of the foal's body and limbs. Without this knowledge and tactile facility it may be impossible to understand the hindrance to birth, and to render assistance by adopting proper measures or resorting to effective manœuvres. So that the amateur or unskilled operator is likely to do more harm than good, and may even unawares convert what to an expert would prove a comparatively simple case into a most difficult if not altogether hopeless one." (*Professor Axe.*)

Although the author rather prides himself on his rough knowledge of the "internal anatomy of the mare's generative organs, healthy and pathological," he fully realises that it would be the height of folly and presumption for him to attempt to deal exhaustively and usefully in these pages with so complicated and difficult a subject, fraught as it might be with serious consequences to possibly priceless live stock. The wiser course seems to be to suggest that a thoughtful study of Professor Axe's chapter in "*The Horse,*" on "Breeding," profusely illustrated as it is with cuts of "Malpresentations," would well repay any stud groom.

There are many varieties of "Malpresentation"; the following are those most frequently encountered:—1, hind

legs presented first; 2, one foreleg doubled back under the foal's belly; 3, head presented, both forelegs doubled back; 4, head and all four legs presented; 5, breech and hocks presented; 6, legs and breast presented, head turned back; 7, neck presented, head and forelegs doubled back.

Of the foregoing list, No. 1 is the only one that will present little difficulty in overcoming; steady manual traction timed to the mare's heaving will usually be successful. If the attendant's examination reveals conclusively either of the last six positions, or if he is unable quite to make out what the exact position is, his duty, in either case, is the same. He should send immediately for the *nearest* (for every moment is precious) veterinary surgeon, warning him that it is a bad case, so that he may bring chloroform and the necessary instruments with him. While awaiting the surgeon's arrival, the attendant may endeavour to straighten the foal, so long as he finds he is making any progress; but if he finds all efforts futile, and that he is causing the mare to exhaust herself in vain straining, he had better desist, as the mare will require all her strength before the ordeal is over.

AN INVERTED UTERUS.

A serious but fortunately not common mishap is inversion of the uterus, which sometimes occurs after foaling, the uterus being turned inside out and hanging from the vulva down to the hocks. It is usually caused by excessive straining on the mare's part after the foal has been expelled. Here, again, a veterinary surgeon's assistance is very desirable, and if his speedy arrival is assured, all amateur efforts to replace the uterus are best avoided, the attendants confining themselves to an endeavour to ensure that the exposed organ does not swell and become foul from inflammation,

and thus add to the difficulty of the task awaiting the surgeon.

"With this object an old, though clean, blanket should be procured, and, being folded once and soaked in a warm solution of carbolic acid, should then be passed under the womb and raised by a couple of men standing one on each side behind the mare, until the displaced organ is brought into a straight line with the vaginal opening. By this means the weight is removed from the part by which it hangs, and the circulation is restored and facilitated. The effect of cold and exposure, which tends to cause congestion, may be guarded against by covering it over with a flannel wrung out in warm carbolized water. Failing to secure professional assistance an attempt should be made to return it. Before commencing to do so the hands of the operator should be thoroughly cleansed and dressed with carbolized oil, and should any dirt have become attached to the extruded organ it must be carefully removed by washing with warm carbolized water. The organ should also receive a dressing of carbolized oil over its entire surface. When the uterus has become much swollen and congested it will be necessary to effect a reduction in its size before it can be returned. To do this the surface of the mucous membrane will require to be scarified, *i.e.*, be pricked here and there at numerous points with the point of a clean lancet or knife and then fomented with warm carbolized water.

"In commencing to put it back, that part of the organ nearest to the vaginal opening should first be pushed inward, and the part next succeeding should follow until a considerable portion has been replaced. Then, while it is still supported in position, the doubled fist should be placed against the extreme end of the extruded part, and by careful, gentle, and continued pressure the whole returned to its

place. In order to obtain all the available room possible for this purpose, the rectum should be emptied of fœces before return is attempted.

"On completion of the operation the mare will be benefited by a full dose of tincture of opium to check straining, after which she may be placed in a stall with the hind legs under-packed with litter so as to elevate the hind parts, and a truss should be adjusted to the vaginal outlet in such a way as to prevent the escape of the viscus again." (*Professor Axe.*)

Note (See p. 41): The long web lungeing rein will come in handy when a mare, as often happens during the labour pains, rolls over and gets "cast" against the wall of the foaling-box. Two men, at a pinch even one, with the aid of the lungeing rein looped round her fore legs, can quickly haul her over into her original position.

Chapter V.

THE TREATMENT OF FOALS.

The time elapsing between the foaling and the foal gaining its feet and retaining them varies from thirty minutes to one hour and a half. In practice, it will be found that the medium-sized foal will be up in half the time taken by the big sprawling one. In either case, "masterly inactivity" should be the attendant's motto; he should not interfere till his judgment tells him that assistance is imperative. Many grooms, doubtless with the best intentions in the world, seem imbued with the idea that at foaling time their duty lies in giving Nature help at every phase of functions which are the very acme of simplicity and efficiency. It is scarcely an exaggeration to say that in the case of the mare foaling without any complications, the man who had never seen a mare foal, and who was an interested but passive spectator through some convenient peep-hole, would have done better work than the officious veteran who felt impelled to give premature help at every stage of the event. The following pen pictures will illustrate the point.

"Peeping Tom," from his hiding place, would see the new born foal floundering and ploughing through the straw in futile efforts to get on to its wobbly legs. After many failures, and when lungs, muscles, and tendons had by these gymnastics been sufficiently developed, he would at last struggle on to his feet, and with legs stretched wide apart, stand swaying backwards and forwards in a desperate effort

to retain his balance, and escape an involuntary header into the straw. The first attempt to bring one of the outstretched legs under him would probably result in disaster, and he would be laid low. After a brief respite to obtain his wind and perhaps consider the matter, he would once more regain his feet, and, command of his muscles increasing every moment, would presently find himself capable of locomotion. Throughout his plucky efforts the mare has anxiously followed his devious career, licking and drying his wet body, and showing her maternal solicitude. Now she insinuates herself alongside her foal, still industriously plying her tongue. The foal, nosing about, suddenly touches her warm body. Instinctively his lips pucker up, his tongue tip curls, and he sucks, and sucks, and sucks, her knees, chest, neck, belly, hocks—all are explored, while she stands patiently awaiting the moment when at last the baby lips encounter the projecting teat. Then the tongue curls round it, and a tell-tale gurgling sound in his throat proclaims that he has "struck ile" at last. It may here be noted that the word "oil" is not inappropriate to the situation, as by a wise provision of Nature this first-drawn milk of the mare contains a laxative principle (calostrum), which sets the foal's bowels in motion, and clears them of the accumulated fœces or dung.

Our other picture shows the officious attendant watching the foal's futile attempts to get on to its feet. Not realising that these struggles are faithfully fulfilling their part in Nature's pre-arranged plans, he feels it incumbent on him to lend a hand. This he proceeds to do, only to discover, when, after the expenditure of much exertion, he succeeds in getting the foal on to its feet, that its legs are unable to support the weight of its body, and double up under it. The attendant's arms grow tired of the weight

thrown upon them, and he is glad to let his helpless burden sink to the ground. The good effected is nil; the harm done is measured by a bewildered foal, and a mare alarmed and distressed when it is imperative she should be kept as quiet as possible. Later, when the foal has mastered the art of balance and locomotion, and is industriously endeavouring to extract milk from the mare's knee, the walls of the foaling box, or the straw bed, our friend again goes to the foal's assistance. The mare, her maternal instincts aroused, and misinterpreting his designs on her foal, places herself between the man and her foal, and, with ears laid back, indicates plainly "hands off." This entails calling in another assistant, who, by threats or cajolery, catches the mare. The chief operator then catches the foal, which more often than not, being startled by this new experience, struggles, bucks, and squeals like a young porker, to the no small alarm and distress of the mare, and apparent banishment of all sucking instinct from the foal. A newly-born foal being forced to suck is perverseness typified; in some cases its lusty struggles to escape from its would-be helper alternate with spells of stolid sulking; in others it will suck the assistant's fingers, buttons, clothing, etc., ignoring the mare entirely, following the man round the box, whinnying after him as though in fear of losing him. The chief difficulty arises from the fact that to secure the teat and swallow with any comfort the foal has to hold its head at right angles to its body. Left to itself in its foraging for refreshments, it will sooner or later discover the trick of it; but if distracted by a fussy attendant trying to force its head into the necessary position, it will stubbornly resist coercion, with the result that it is soon in that frame of mind best described by the proverb: "One man may lead a horse to the water, but a dozen can't make him drink."

WHEN HELP IS NEEDED.

There is no need to labour the point further. Enough has been written to show that in most cases all that is required of the attendant is to be an alert but passive spectator. Experience will teach him that this is best for mare and foal and easier for himself. There are, of course, occasions when he will be called on to render help. For instance, when a young, inexperienced mare, by her restless movements, is continually baulking the foal's search for the teat, it is well to take her by the head and quietly manœuvre her flank into proximity to the foal's muzzle, and hold her steady till the foal secures the teat. Again, when the foal is really weakly, and shows unmistakably, after an hour or so, that it has not the strength to get on to its feet, the attendant, instead of wasting his strength in lifting it on to legs that refuse to support it, should get the feeding bottle, fill it with milk drawn straight from the mare's udder, and give it to the foal while in a recumbent position.

It must be most clearly understood that anything in the way of drenching must be strictly avoided. The danger of choking and the milk "going the wrong way" in such a young creature is self evident. The milk must be *sucked* in. With plenty of patience and a little skill this can be managed. Place a moistened forefinger against the foal's lips; if it does not soon respond, very gently and slowly insinuate the finger between the gums on to the tip of the tongue. Do not despair if success does not come at once; force spells failure, gentle perseverance success. When the sucking instinct has been aroused, and the foal sucks the finger heartily, the feeding bottle may be skilfully substituted, care being taken, by manipulating the elevation of

the bottle, that the milk does not flow too freely and cause coughing and choking. Repeat the meal every quarter of an hour, and unless there is something radically amiss, the foal will soon gain strength enough to scramble to its feet and forage for itself. It sometimes happens that the foal when born is so weak and its vitality so low, that it makes no efforts to rise and cannot be coaxed to suck. There is nothing for it then but to pour the milk down its throat, about a dessertspoonful at a time, to prevent choking. The addition of a little whiskey or good port wine to the milk will be beneficial in these cases.

A MAIDEN MARE'S OFFSPRING.

The idea that "maiden" mares, that is mares foaling for the first time, are very apt to injure their foals, is a prevalent one. The author can only state that in a rather lengthened experience he has only known of two instances in which his intervention was necessary to prevent an accident. The trouble is generally caused by the attendant's apprehension, which converts a remote possibility into a certainty. One has only intelligently to watch a mare when foaling for the first time to realise this. Even the first pangs of labour seem to puzzle and worry her by their novelty. When at last the foal is delivered and dragged round to her head, her distended eyeballs and gingerly out-stretched nose unmistakably denote fear and wonderment. Having overcome her momentary fear, and touched and smelt her offspring, the maternal instinct leaps into being, and she lovingly licks its wet quivering body, the first quick movement of which causes her sharply to withdraw her head as if she half expected to be bitten. As the foal gathers strength and the use of its limbs, so, too, do the mare's confidence and maternal instincts gradually increase, till at length, when

the foal gains its feet and starts nosing round her in search of food, she will submit bravely; and although she will tremble and cringe when her flank is reached, she will very, very rarely kick her first-born.

Does it not follow, then, that the attendant intruding himself into an atmosphere so highly charged with nervous tension, generated by suffering and novel experiences, would be more likely to increase than to allay mental excitement. There are exceptions to all rules; with this reservation, it may safely be laid down that in the case under consideration, Nature's laws may implicitly be relied on to give satisfactory results. Agreeably to the foregoing principles, the attendant may safely confine his duties to close attendance and watchfulness, in case the mare develops spiteful feelings against her offspring. With maiden mares, the author's practice has been, after applying No. 1 dressing to the navel, and taking the foal round to the mare's head, to refrain from going again into the foaling box until the foal has got up and sucked. The mash and chilled water may well wait till the maternal instinct is well roused and established in the young mother; and this happy consummation will only be retarded when the mare's attention is constantly being distracted and her maternal fears aroused by an officious attendant's presence. In the comparatively rare case of the mare refusing to let the foal suck, or even approach her, she must be bridled, a fore leg held up, and, if necessary, a twitch applied; the udder well handled, some milk drawn away, and the foal then manœuvred into the necessary position for sucking. All violence and abuse should be religiously avoided, to the end that the mare will not connect the foal's sucking with punishment, and will the sooner come to a proper appreciation of her duty, and the disciplinary measures may the sooner be dispensed with.

In these cases it will be necessary to have someone constantly on guard ready to enter the box and hold the mare whenever the foal is on its feet, and evincing a desire to suck. The attendant's help is often unnecessary after the foal has sucked once or twice; but in bad cases the mare may require close supervision for twenty-four hours or longer. Judgment and observation will tell when these precautions may safely be relaxed.

CONSTIPATION IN THE FOAL.

The purgative quality of the first-drawn milk has already been noted. This acts with varying degrees of quickness, according to whether the foal's bowels are constipated or not. In the early months of the year when, owing to the short days and inclement weather, the exercise of the mare is necessarily rather restricted, the foal will often be found constipated in sympathy. Some equine "mid-wives" seem to have a cast-iron time-table to which they rigidly adhere in all or any circumstances. With them the foal must be on its legs in so many minutes, have sucked in so many more, and passed its first dung in so many more; failing which they set to work to repair Nature's supposed remissness. Even if it is granted that their methods are attended by apparent success, it is an open question whether success is the result of such methods or in spite of them. Put in homely language, it may be advised in all stable management that Nature should be allowed first try, the groom standing by, ready to go to the mare's assistance the moment she hoists signals of distress. In some instances the foal passes dung before it has sucked, or is even steady enough on its legs to get the teat in its mouth; but usually the first motion of the bowels takes place in from ten to thirty minutes after the first milk has been swallowed. If

constipation is present, the fact will be patent enough to the watchful attendant. The foal, with tail erect, strains violently to expell the hardened fœces, alternately galloping clumsily round the box, owing to the attendant pain. If success does not attend these efforts in a few minutes, it is well to render help without further loss of time. An assistant takes the mare's head with the left hand, and secures the foal round the chest with the right; the operator grasps the foal's tail near the root with his left hand, and with as little force as possible introduces the well-vaselined fore-finger of the right hand into the rectum, and gradually removes the hardened dung. With a little practice this can be done without removing the finger from the bowel. The hand should be held with the palm upward to receive the fœces as they are pushed out by the inserted finger. When no more dung can be reached, insert one of the Glycerine Suppositories (which can be carried behind one's ear in readiness); push it, with the vaselined finger, as far up the bowel as possible, then suspend operations for a time to allow the suppository to act. "Glycerine acts by virtue of its great affinity for water, in that it causes a rush of intestinal fluid to the part of the bowels occupied by the glycerine." (*Capt. Hayes.*)

Mild cases of constipation usually yield to the foregoing treatment, but in bad cases, although the glycerine is presently evacuated, no excrement accompanies it, and the foal strains as badly as ever. It will generally be found, upon inserting a finger, that the bowel is quite empty, or the hard impacted fœces can be touched by the finger tip, but are just too far away to allow of the finger coiling round and bringing them away. In that case an enema of half a pint of warm water, containing a dessertspoonful of pure glycerine, should be given. An ordinary enema pump, as

used in human practice, is the proper instrument to use on a young foal. As prolonged constipation would be dangerous to life, at least at this stage, these enemas should be repeated every quarter of an hour till the fœces coming away are soft and normal.

The foal having sucked, and had a motion of the bowels, the foaling box should be cleaned out, all the wet and soiled straw removed, the floor well swept and disinfected, and a generous bed of clean straw given. The "after-birth" should come away within a couple of hours of the mare foaling; if it has not done so, a man should be left on guard to watch for its being expelled, as mares have a bad habit of starting to eat it if it is left lying in the box. In the event of prolonged delay in expelling it, on no account should force be used to remove it, as serious injury might be done. A half-pound weight may be tied to its lowest extremity to give a steady drag to it, but if this does not have the desired effect, a veterinary surgeon should be called in without further delay. This retention of the "after birth" often occurs when mares foal considerably before their proper time.

ARTIFICIAL FEEDING.

It occasionally happens, generally with maiden mares or with mares that have foaled considerably before their proper date, that there is no milk for the foal, in which case cow's milk diluted with water (one part water to two of milk) nicely sweetened with Sugar of Milk, will have to be substituted till such time as the mare can be brought into full milking condition. It is very important in such cases that the foal should thoroughly acquire the trick of sucking the mare before being fed artificially, otherwise it will ignore the mare for the man and bottle, and cause no end

of bother to get it to the teat when the mare's milk supply has become established. The most effective stimulant to the milk secreting ducts will be a hungry foal continually sucking at them, while liberal rations of linseed and bran mashes for the mare will be found most efficient aids to milk production.

It may be conveniently mentioned here, while on the subject of artificial feeding of foals, that there is no really satisfactory substitute for mare's milk. Foals reared by hand rarely do any good as race-horses, though in the case of fillies, for breeding purposes they may prove worth the cost and trouble of rearing. A foster mother, if one can be procured and persuaded to take kindly to the little stranger, is undoubtedly the best solution of the difficulty. The secret of successful hand rearing of foals lies in feeding in small quantities and at frequent intervals. A healthy foal with its mother takes a little refreshment practically every two hours. Feeding an orphan foal at such short intervals day and night may entail expense and trouble, but it is the only system which gives successful results. In the event of a mare dying and a foster mother being unavailable, it will be more convenient to substitute a basin or small pail for the feeding bottle after the first few days; a hungry foal will soon acquire the habit of drinking from these utensils. After the first month the intervals between meals may be gradually increased, and the quantity of water added to the milk decreased, till at three months old the milk can be presented undiluted, but should at all times be warmed to the temperature of the mare's milk, viz., about 100° F. One pint of diluted milk every two hours will be ample for the first month, and it will be a great advantage if the milk is obtained from the same cow throughout. In fine weather the foal should be turned out for exercise that it may (when

old enough) learn to eat grass, and at three months should be taught to eat a small ration of extra bruised oats. Foals acquire these last mentioned accomplishments from imitating their dams, and in practice it will be found that an orphan's education in these respects will be immensely facilitated by the companionship of an already weaned foal, or, failing this, a donkey or calf.

For the first few days after foaling the mare should have plenty of scalded bran with her corn, and her usual hay ration should be much curtailed; this will prevent constipation and favour milk production. If the foaling box is not required for another due-to-foal mare, it is as well if the mare and foal are left undisturbed for the first forty-eight hours after foaling. If it is really necessary to remove them, the following method will be found the most expeditious and least calculated to "fluster" the mare. Let two men, facing each other, join hands round the foal, their arms round its chest and buttocks respectively. It can in this way easily be restrained or urged forward as required in its first journey from box to box, while the mare can be led behind her offspring, and can touch it with her nose and assure herself that all is well.

Strict attention should be given to the cleanliness of the box to be occupied by the mare and foal, as at this stage both are extremely susceptible to infection, the one through the navel, the other through the inflamed generative organs. If the mare has a copious sticky and offensive discharge from the vulva, she should have the parts irrigated twice daily with a solution of chinasol (one tabloid to a pint of warm water) till an improvement takes place. This will prevent the offensive matter contaminating the mare's udder and setting up diarrhœa in the foal, and also ensure the

mare's generative organs being in a satisfactory condition when she is due to re-visit the stallion.

FRESH AIR AND EXERCISE.

Even at this early stage of the foal's existence any undue "coddling" or pampering should be avoided. Plenty of fresh air is essential, the ventilation and temperature of the box being regulated suitably to the season of the year and prevailing climatic conditions. The end to be kept in view should be to prepare the foal for taking outdoor exercise without harm at the earliest moment its age and the weather will permit. On the fourth day after foaling, the foal is generally quite ready to take outdoor exercise. The great convenience of having an enclosed straw-yard will now be appreciated. There are many stud farms without one which seem to manage satisfactorily; the difference between studs that have and those that have not is that on the former the work is carried on with efficiency and comparative freedom from accidents, while on the latter it is "muddled through" with occasional "regrettable incidents." In the absence of a yard, the young foal must perforce take its first outdoor exercise in an open paddock. The mare is led out to the paddock with the foal closely hugging her side. At first, over-awed by strange sights and the novelty of the proceedings, it sticks closely to the mare as she is led round, but presently, waxing bold, it cuts a caper or two, and then, rejoicing in the exhilarating freedom after its close confinement to its box, dashes off at a headlong gallop. Fences and sharp corners have no meaning to its baby brain, and if it escapes disaster, luck and not good management is entitled to the credit. Whether the excitement and distress suffered by the mare at not being allowed to follow her flying offspring has done her any harm, may possibly be doubtful,

but it is certain it can have done her no good. The great advantage of having a straw-yard available is that both mare and foal may safely be let *loose* much sooner after foaling, and on the day when the foal is to make its first acquaintance with an open paddock, an hour's preliminary gambolling in the straw-yard will have taken all the "gas" and reckless spirits out of it, and prevent it coming to grief in the more roomy paddock.

During January, February, and March the stud groom must use judgment in regulating the out-of-door exercise of foals. Advantage should be taken of every spell of fine weather. Till the foal is a month old, one hour in the morning and another in the afternoon should be the maximum, unless the weather is sunny and the ground exceptionally dry. High-strung mares that gallop a lot the first few times they are given their liberty, and thus get their foals sweating and tired, should be brought back to their boxes, lest the foal should lie down in its heated state on the cold wet ground, or take a chill from the prevailing cold wind.

The mare usually comes "in season" about the ninth day after foaling, and a frequent result of this condition is "wetting" or diarrhœa on the part of the foal, caused by the mare's milk becoming temporarily fermented and acid. Keeping the mare rather short of food and water, and giving her twice daily an ounce of bi-carbonate of soda in her mash will diminish the volume and correct the acidity of the milk. This form of diarrhœa is not a serious matter, and generally passes off as the œstrum or "heat" of the mare terminates. A more serious form is that in which acute purging of a brownish watery fluid is accompanied by extreme debility and refusal to suck the mare. This type of the ailment is the result of infection through the navel, and

calls for prompt treatment if it is to be successfully combated. A drachm of chlorodyne in a wine glass full of the best port wine will be beneficial pending the arrival of a veterinary surgeon.

HANDLING OF FOALS.

At five days old the foal should have a pliable, well-fitting head collar put on. Some authorities are against such early "handling" of foals on the ground that bones, ligaments, and muscles are not sufficiently "set" to endure the ordeal. Intelligently carried out, there is not the slightest risk of ill-results; teaching a five days' old foal to be led is more of an amusement than a task, and is accomplished with a minimum of trouble to teacher and pupil. But leave that same foal till it is four or five months' old and there is quite a different story to be told. The pupil is then as strong as, probably stronger than, its would-be schoolmaster, and it is soon a case of "bellows to mend" with the latter, added to tired muscles and bruised limbs against the walls of the box; and the usual result, unless the teacher is possessed of an angelic temper, is that the foal's first lesson is of a very drastic nature. The faculty of teaching is a very valuable gift. Plenty of clever men fail badly when trying to impart their knowledge to others. So it will be found that some stablemen have a special aptitude for teaching horses. It is difficult to define in what it consists; they just "have a way wid 'em," that's all. Such men will teach a foal to be led without friction, and in a quarter the time taken by less gifted colleagues. The latter depend on coercion, the former on "passive resistance" for victory.

AN EFFECTIVE METHOD.

The following is the system the author pursues. Let an assistant put a bridle on the mare; the foal has already

learnt that when he is enclosed within the arms of two men he is quite helpless, but will not be hurt. With the aid of another assistant, repeat this lesson now. When the foal realises his absolute helplessness, and ceases to struggle for freedom, let the assistant hold him with one arm round his chest and the other round his buttocks. The head teacher, working on the near side, as gently as possible fits on the head collar, being ready, if the foal plunges and looks like escaping from the assistant's embrace, to go to that functionary's assistance, for the key to the success of the whole performance is to imbue the foal with knowledge of its complete powerlessness when in the hands of man. Having got the head-collar properly fitted, slip a short web-rein through the ring at the back of the jaw. Let the chief operator retain this in the hand clasping the foal's chest, and order the mare to be led slowly round the box. If the foal wishes to follow, let him do so still encircled by the head-teacher's hands. After a few turns round the box, let him feel the restraining pressure of the short web rein. If he objects, as he probably will, to this innovation and fights, keep him a close prisoner in the clasped hands till the paroxysm is over. Let him stand a minute to reason the matter out, then start the mare forward again, and he will most likely follow, and after a few protests will realise that he can only go with his schoolmaster's permission. The great thing is to let the pupil do everything on his own initiative, if possible. If he is pulled this way and pushed that he becomes stupid and obstinate, not comprehending what really is required of him. To this end it is desirable, if a foal refuses to follow the mare round the box, to refrain from trying to haul him by the rein or push him forward from the buttocks, which procedure will entail a long fight and arouse any latent stubbornness in his nature. The

better plan is to lead the mare out of the box into the open. The moment she finds he is not following her, she will excitedly whinny and call for him; then he will most likely evince as keen a desire to follow and join her as before he showed a strong determination not to do so. If he does not follow, bring the mare back into the box; let the foal smell her for a minute, and then repeat the manœuvre, and keep repeating it till the foal voluntarily starts after its mother; then let it go, still encircled by its teacher's arms. If it stops, as it most likely will do, after proceeding a few yards, stop the mare for a minute while the foal gets a grip of the situation; then lead her off to the far end of the yard or enclosure. As the distance increases between mother and offspring, the latter will suddenly become anxious to join its parent, and there will be another general advance, the pupil still lightly enclosed in the restraining arms. Continue this lesson with unfailing patience and good humour till the foal seems to have grasped the idea of following its dam while still a prisoner.

This accomplished, the next stage may be proceeded with, viz., teaching to lead by the rein alone. Here, again, the teacher's guiding principle should be patience and good humour. Do not attempt to drag the pupil after its dam against its free will; that would be courting resistance and entail a quite unnecessary strain on the strength and temper of both teacher and pupil. The mare is led forward once more; the foal, missing the encircling arms, lunges wildly after her, swerving sideways to get away from the officious biped who presumes to control its progress. Here brute strength comes in on both sides; the tug-of-war will be short, sharp, and decisive. The essentials to success are a short hold of the rein, a quick eye, nimble foot work, and making every ounce of one's weight tell. The result of the tussle

must be that it is brought home to the equine brain that man is master. The mare should be stopped during this trial of strength; when the foal has recovered its wind and collected its thoughts, start the mare off again, and repeat the lesson to the foal. Finding it is not allowed to *rush* after the mare, the foal will probably stand and sulk. Do not attempt to pull it forward, leave the rein quite slack, allow the mare to proceed, and await the foal's pleasure. It will soon desire to join her. When it does start off again, allow it to travel as fast as it likes so long as the teacher does not lose his balance or relax all restraint on the rein. When the foal overtakes its dam, manœuvre to steer it to her near side so as to box it up as it were, *i.e.*, the man leading the mare is in front, the mare herself on the right, and the especial "tormentor" on the left. Walk it round thus with just sufficient pressure on the rein for it to realise that it is still being controlled. Finding itself hemmed in on three sides, it will probably attempt to escape to the rear; hold fast, let the mare proceed, and calmly await events. When it does decide to advance, deftly steer it into the "pocket" as before. Continue on these lines, and it is astonishing how quickly the average foal will grasp the meaning of it all. Do not prolong the lesson unnecessarily; once the foal realises what is required of it, let it out to play. Repeat the lesson later in the day, and then twice daily for a few days.

A PLAN THAT FAILED.

Lest it be thought that the author has unduly laboured this particular subject, perhaps he may be permitted to give an example of "how not to do it," which came under his personal observation. He instructed a subordinate (a graduate from a large and fashionable stud) to halter and lead a certain foal. After attending to several matters

which required my personal attention, I strolled round to see how the foal-leading operations had progressed. Arrived at the scene of action, a decidedly interesting tableau presented itself: a mare being led about in a paddock, two welter weight men hauling on the lungeing rein attached to a foal, said foal with outspread forelegs, toes dug in the ground, doggedly resisting their united efforts to move him, while a third man, with a leafy branch of a tree, buffeted his hind quarters. As I approached, the foal, finding himself about to be "pulled over" in the tug-of-war, deliberately threw himself to the ground with a resounding thud. As he lay there black with sweat, eyes closed, and flanks heaving, he presented a perfect picture of mulish obstinacy. I mildly inquired what was the matter, and was informed that "this was the blankest blank stubborn foal as ever was; that this particular mare's foals were always pigs, but this particular foal was the most swinish of the lot," or words to that effect. Further inquiry elicited the information that the lesson had been in progress three-quarters of an hour. Sending the two assistants away, I told the chief operator that I would try my hand while he took a much-needed rest. Lighting my pipe, I took the lungeing rein and quietly awaited events. The foal, having regained his wind, presently opened his eyes, scrambled to his feet, and stood eyeing me sulkily. I called the dam up alongside, and the foal took a much-needed drink of milk. The mare was then walked away; the foal immediately followed, but, finding the detested rein still attached, struggled violently to break free. Failing in this he spread out his legs and planted his toes in the ground, the very picture of defiance.

Holding the rein perfectly slack, I smoked on, awaiting his foalship's pleasure. The mare was by this time quite a hundred yards off, and still travelling away. This was more

than the foal could endure, and, suddenly pricking up his ears, he dashed after her. I followed hot foot at the full length of the rein, till the pace became so hot that, in danger of being carried off my feet, I was compelled to put the brake on. The first pressure on the rein was the signal for an immediate halt, and the foal braced himself for another tug-of-war. I ignored the challenge, slacked the rein, had the mare brought back and led past the foal's nose, and away in the opposite direction. Immediately the foal followed, only to stop as before at the first feel of the restraining rein. To cut a long story short, I will only say that after repeating this manœuvre several times the foal gradually grew more tractable and followed the mare round closely, albeit still looking rather sulky and inclined to resent the leading rein. The moment he appeared to have grasped what was required of him, I stopped the lesson for the day, and have only to add that a very brief session on the same lines the following day completed that branch of his education. My subordinate, while admitting the success of my system, opined that "it wasn't leading foals, but being led by them." I was not concerned to argue about the correct definition of the system, but was content that it should be judged by its efficiency and ease of application.

I trust I have made plain the advantage of breaking foals to lead when quite young. The benefits will most surely be appreciated when the foal's feet need trimming, or cuts or bruises want dressing. In leading a number of mares and foals to and from the stables to the paddocks each day there is always a risk of foals getting kicked when loose and dodging in and out amongst a string of mares, and approaching another mare in mistake for its own dam; to say nothing of a trick foals have of following another foal into its box instead of following its own dam into hers, or

of going off on a tour of inspection round the stable yard. All such risks and sources of delay will be avoided when foals are well broken to lead at the earliest possible age. This admits of each man taking a mare and foal, the mare in his left hand and the foal in his right, both going to and from the paddocks, especially when a public road has to be traversed.

A FOAL'S RATIONS.

As Summer advances, the early foals will have learnt to eat oats and bran from the dam's mangers, and will be found claiming their share of the mare's daily rations. That share will vary according to the disposition of the dam. If she is a good mother the foal will be a "working partner" till the job is finished; but in many cases the maternal instinct does not include sharing the tasty corn ration, in which case the luckless foal remains a keenly-interested spectator of the feast, at a discreet distance from the threatening maternal heels and teeth. When the foal has reached this age, the only way to regulate the amount of corn it is desirable that it should get, and also ensure that it gets a chance to eat it, is to tie up the mare to her own manger, and fix up a separate manger, well out of the mare's reach, for her foal.

With regard to the proper amount of oats for a three months' old foal, it would vary so much with a dozen foals that it will be more satisfactory if I say that the supply must be governed by the demand, *i.e.*, ascertaining by actual experiment how much each individual foal will eat up clean. It is most important to bear in mind that the digestive organs of a three months' old foal are not very much developed. Also that it is only the food that is thoroughly digested and assimilated that yields nutriment; any surplus is not merely wasted, but is seriously detrimental to the

foal's health. Starting with one pound of extra-well bruised oats, with a little damp bran mixed through them, the ration may gradually be increased as the foal grows older and its appetite develops. The oats should be of the finest quality to ensure the greatest possible amount of nutriment in the smallest possible compass. If the pasturage is high class and luxuriant, the mare's corn ration may be discontinued, but if the foal's calls on her prove too heavy a strain on her vitality, and cause her to fall off too much in condition, she must be put back on her corn ration, or the milk will deteriorate in quality to the detriment of her offspring.

IRRITATION FROM FLIES.

From the month of June to the end of August, flies are a source of great irritation and worry to mares and foals in the open. To a lover of horses there is no more distressing sight than that of a batch of mares and foals, on a sweltering Summer's day, vainly attempting to escape the attentions of the swarming flies. All endeavours to graze are frustrated by their remorseless tormentors. With tossing heads and switching tails, the poor beasts huddle together in some corner of the paddock, where perchance some tree throws an altogether inadequate shade. In their endeavours to rid themselves of the pests by transferring them to their companions in distress, the mares and foals get inextricably mixed up, till the wonder is that a single foal escapes unscathed from the mêlee. But for one serious disadvantage, the ideal plan to follow under such conditions would be to keep the mares and foals in their boxes, with top doors, windows, and ventilators thrown wide open, during the heat of the day; then, in the cool of the evening, to turn them out to graze in comfort on the dew-refreshed herbage throughout the night, getting them in the next morning as soon as the

flies commence operations. The drawback to this plan is—the big risk of the foals sustaining injury, generally the result of a youngster approaching the wrong mare in the darkness when in search of milk. By a strange fatality, it is nearly always the gem of the collection that meets with disaster; the "ugly ducklings" seem to bear a charmed life. An alternative plan on a small stud is to keep the mares in during the dark hours, turning them out at break of day and getting them in again as soon as the flies get busy, and keeping them confined to their boxes till evening, when they can be put out for a few hours, and got in again for the night just as darkness falls. This entails the staff commencing work at 3 a.m. and "knocking off" at 9 p.m.

The best plan of all, when there are a sufficient number of paddocks available, is to keep the mares in their boxes during the heat of the day, and turn each mare and foal into a *separate* paddock for the night. Of course in localities where stray curs, poachers and such like nocturnal gentry are in evidence, the necessary precautions must be taken to prevent "accidents."

Chapter VI.

WEANING THE FOAL.

As July 1st draws near many fortunate people get busy with plans and preparations for their "annual" outing, conjuring up visions of the seaside and other delectable places. Not so the stud groom. True, the foaling season, with its night alarums and excursions, is now well over; the "covering" season is far spent, and "breaking" mares will soon cease to exasperate him. But, although the high pressure may be somewhat relaxed, the time for "easy all" is not yet. There is the January batch of foals to wean, and a troop, large or small, of yearlings to "take up" and handle preparatory to their journey to the training stables or sale ring.

Though the methods of weaning adopted at various stud farms vary but little, there is some divergence of opinion as to the best age to "take off" or wean foals. Some favour four months, some five, others six. The author holds a very strong opinion that six months should be the very earliest age at which a foal should be deprived of its mother's milk. The wit of man has not yet evolved a substitute remotely approaching Nature's perfect blend of bone-forming, tissue-building, blood-purifying elements in their most assimilable form. One has only to compare the sleek, perky foal when gambolling at its mother's side, and when it has been weaned a fortnight. The contrast between the sleek-haired, rotund foal, bubbling over with good health and high spirits, and

the dejected, dry-coated, pot-bellied animal into which it has become metamorphosed in a few short weeks speaks eloquently of the part that has been played by the mare's milk. Take, again, the case of the foal that, through the death or disablement of its dam, has been reared on cow's milk and artificial foods, does not its general appearance during its babyhood, and its subsequent performances on the Turf, prove conclusively the value of the mare's milk. When at large on the open prairie a mare allows her foal to suckle her at least up to nine months of age, and this conduces to the keeping of herself and the embryo she is carrying in the best possible condition for an easy safe delivery. That is one important point in favour of late weaning. The "hall mark" of a recently-weaned foal is its "pot" belly. This arises partly from the stomach being distended with imperfectly digested food, and partly from a general loss of condition and flesh, due to the foal's restless peregrinations during the first few days of its bereavement, which serves to throw the pot belly into greater relief. Even when the weaned foal's ration of oats is not increased by one ounce beyond what it had "cleaned up" daily from its separate manger in its dam's box before being "taken off," the pot belly is developed, showing conclusively that one function of mare's milk is to act as an aid to the digestion and assimilation of the more solid foods partaken of by the foal.

The udder of the average thoroughbred mare, when her foal is weaned at five months' old, requires constant attention to prevent trouble arising from the amount of milk secreted. For the first twelve hours the distended udder must be milked out every four hours to avoid all danger of congestion and subsequent inflammation. At such times, when watching the generous stream of rich milk being drawn off into the straw bedding, I have often pondered over the

slavish adherence to custom which ordains that this supply of Nature's own food shall be suddenly withdrawn from the foal, simply because the Calendar shows that five months have elapsed since the animal was born. The theory underlying the system generally in vogue in this particular branch of stud management, roughly stated, would appear to be to aid and abet the foal in extracting the maximum amount of nutrition from the mare from the day of its conception to the day of parturition, and after foaling to deprive the foal of that nutrition at the earliest possible moment. Anything more diametrically opposed to Nature it would be difficult to conceive.

ADVANTAGES OF LATE WEANING.

The advocates of early weaning do not, I imagine, base their action on the ground that what is so beneficial for twenty weeks, becomes suddenly harmful in the twenty-first week. That, of course, would be absurd. One of the reasons advanced in justification of weaning at five months is that of getting the business accomplished in good time, so that the foal may get over the fretting stage and become reconciled to the new order of things. Reason number two is that the mare's milk deteriorates in quality, and that the foal is better off without it. A third reason is that the longer the weaning is delayed, the greater the risk of the mare "slipping" or aborting the embryo she may be carrying. My reply to reason number one is that in any case the foal will fret for its dam whether weaned at five or eight months; the important difference is that at eight months old the foal's digestive organs are so fully developed and capable of properly assimilating a corn diet, that the withdrawal of the mare's milk will very much less affect its progress than it would that of a foal three months younger. The mental dis-

tress at the loss of the mare's companionship will be equal in both cases, but the physical effect of the sudden withdrawal of the milk ration will obviously vary with the age of the bereaved. As to reason number two, the author freely admits that, in the case of an April born foal, by the time it was six months old (that is in October) the grass would be below par and the quality of the mare's milk deteriorated, but with a fully-stocked corn and bran bin at the stud groom's disposal, there is no reason why the milk supply, even if somewhat diminished in quantity, should suffer in regard to its nutritive qualities. "Half-a-loaf is better than no bread." Even if the mare's supply of milk diminished by one-half, it seems illogical, for that reason alone, to deprive the foal of even the remaining half. So great a store does the author set on the value of the dam's milk, that even if the supply was reduced to a quarter of its previous quantity, he would deem it well worth having, and would endeavour, by a generous corn diet for the mare, to ensure that if the quantity had diminished, the quality at least should be maintained, and, if possible, increased.

As to the general question of milk deterioration, it would be most interesting and instructive to have samples of the milk of six average and healthy brood mares subjected to an analysis one week after foaling, and their milk again tested, by the same analyst, three months later, or, better still, an analysis taken month by month. Of course careful allowances would have to be made for possible variations in weather, condition of herbage, and temperaments of the mares experimented on, but the general results should be to furnish valuable information.

In regard to reason No. 3, the author can only say that, during seven years' Canadian experience, when the mares weaned their foals at their own pleasure (generally during

the eighth or ninth month) he never got a sign or suggestion that the practice predisposed to abortion. As a matter of fact, abortion was practically unknown amongst the prairie herds, at least at that period, viz., 1887-1893. Apropos of weaning, the author recalls a Canadian case in which a mare foaled a filly in the spring of 1888, and eluding the annual Spring "round up," and being fortunate enough to escape the attentions of Indian stallions roaming at large on the prairies, was not covered that year. She was again missed by the "round up" party in the Spring of '89, but was finally "corralled" that Summer. Her foal of 1888, now one year and three months old, was still regularly sucking, and to all appearance obtaining an ample supply of milk from the complacent mare, while as to "fretting," no five months' old foal ever fretted for its dam more than did this fifteen-month old "baby" when separated from its mother.

THE SEPARATION.

At whatever age it is decided to "take off" the foal, the procedure is very simple, and with ordinary care no difficulties should arise. For the twelve hours previous to separating mare and foal, the mare should be deprived of food, and only a small quantity of water allowed her, the foal's regular toll of the milk supply and the withdrawal of the mare's food, combined, will ensure that, when the actual separation is carried out, the udder will be practically depleted of milk. When separating the foal from the mare the best plan, if possible, is to leave the foal in the box it has been sharing with its dam, and to take the latter to a distant part of the farm, where they will be out of sight and hearing of each other. By this procedure the foal will be less upset and will cease fretting sooner than would be the

case if it were simultaneously deprived of its mother's companionship and immured in strange quarters. The separation being effected, the mare can have a small ration of hay, and at the expiration of four hours the udder should have attention. If it is distended with milk it must be fully relieved; if only a small quantity has been secreted, it should not be milked dry, but a portion only drawn off. The object to be kept in view is to dry up the milk supply as quickly as may be, while avoiding all risk of congestion or inflammation; to strip the mare's udder dry at frequent intervals would serve only to stimulate the secretion of milk, and prolong the supply indefinitely. Heavy milking mares will require frequent attention during the first twenty-four hours after weaning. Of course each case must be treated on its individual merits, but the general routine is to keep the mare on short commons as regards hay and water for the first forty-eight hours. Draw off sufficient milk every four hours for the first twelve, then every six hours for the next twelve. Four times during the next forty-eight hours, once daily for the next two days, then every other day, then every third day till the secretion of milk ceases. The mare can be turned out for a short time daily after the third day, preferably in a paddock where the herbage is scanty. The poorer the grazing, the less the milk secretion. Should the udder get congested and become hard, swollen, and painful to the touch, it should have hot fomentations, after which the accumulated matter should be gently drawn off from the udder, which should then have some Marsh Mallow ointment or pure olive oil rubbed into it. Repeat this treatment till the udder becomes soft and pliable to the touch. Four ounces of Epsom Salts twice daily in a mash will serve to keep the mare's blood cool, and clear the system of impurities.

The weaned foals will have settled down to the new order of things after a couple of days, sufficiently to permit of their being turned out in a well-fenced paddock. The colts should be put in a paddock by themselves, the fillies in another. This early separation of the sexes is advisable, otherwise precocious colts may easily acquire tricks and ideas which will not conduce to their orderly behaviour on the training ground and race-course. For the first few days the weaned foals will be too upset to do themselves justice at their mangers, but once they are reconciled to the loss of their dams, every effort should be made to push them on. By gradual steps, regulated by the foals' appetites and digestive powers, the corn ration should be increased till eight pounds of well-crushed oats, mixed with a third of that weight of dampened bran, are consumed daily. The addition of a handful of thinly-sliced carrots will be appetising and beneficial. Later on, when the summer grass is over and prime hay has to be substituted, linseed and bran mashes twice a week will keep the bowels regulated, the skin soft and coat blooming. It is a good plan also to mix a teaspoonful of linseed oil in the mash. When this quantity is taken readily, add a tablespoonful, gradually increasing the amount till the foal will take half-a-pint of oil in a mash without hesitation. By accustoming foals to take linseed oil readily in mash, one avoids the trouble and risk of "drenching" in cases of sickness, or when a mild purgative is required after giving a course of worm powders as soon after weaning as possible. Very few foals are quite free from these internal parasites, and on the principle that it is "better to be sure than sorry," the author always puts each batch of freshly-weaned foals through a course of worm medicine, in an endeavour to ensure them a fair start.

A very annoying and harmful habit, often acquired where a number of foals run together, is that of eating the hairs off each other's tails. The formation of hair balls in the stomach is liable to result from this unnatural diet, while the disfigurement inflicted on the caudal appendages is very vexing. Whether the habit is caused through a morbid condition of the stomach, or is only an idle pastime, I am not prepared to say; but once acquired there seems such a fascination or attraction about the dangerous habit, that it is very difficult to find a preventive dressing sufficiently offensive, and at the same time safe in application, to warn off a confirmed "tail-chewer." The best results the author has obtained, when solutions of Jeyes, aloes, paraffin, etc., proved ineffective, have been gained by saturating the foals' tails with dirty lubricating oil, *i.e.*, oil that has been through an engine's cylinder, etc.

TUITION OF THE FOAL.

The education of the foals, in regard to being led and having their feet handled, will have been completed long before they are weaned; the next step in their tuition will be to accustom them to stand quietly when fastened to the rack chains while they are being brushed over. The best plan is to get them used to the brush first, for the obvious reason that a nervous foal, swerving or running back from the brush, might get a fright at the sudden check of the chain, and in his unreasoning panic might throw himself, and, if the halter and chain stood the strain staunchly, might easily be strangled or at least seriously injured before he could be released. Horses have very retentive memories, and a contretemps of this kind would probably entail weeks, and perhaps months, of patient and skilful handling of the pupil to restore his confidence, and remove all danger of his becoming addicted to the almost incurable vice of halter

breaking. As soon as the excitement and commotion, which usually follows weaning, has spent itself, and the foals have settled down quietly to the changed conditions, a start should be made by hanging up the rack chains above the feeding mangers in such a way that the loose ends will reach the bottoms of the mangers. When the foal is feeding, the loose end of the chain will dangle about its face, ears, etc., will rattle on the manger and conduce to that familiarity that breeds contempt.

Concurrently with this item in the curriculum, the dandy brush stage will be progressing. Kindness and patience are essential to success. The great thing is not to expect the foal to do something well that it does not know how to do at all. Two men to each foal will be necessary at the commencement, one to hold the foal with a long rein, the other to manipulate the brush and pick out the feet. After a few days, when the foal understands that no harm is intended, and submits quietly to the brushing of foretop, mane, tail and limbs, one man may take charge single-handed. Having first gently brushed the foretop, face and neck, he will quietly pass the free end of the long rein through the ring in the wall to which the rack chain is attached. Holding the slack of the rein in his right hand, he will brush over the foal's shoulder, back and quarters with the brush in his left, taking care to keep a gentle "feel" of the foal with the rein. If, as in all probability he will, the foal starts and flies back, no attempt should be made to hold him absolutely fast during the first lessons; a judicious "give and take" should govern the tutor's method, but gradually the foal should learn that he is not a free agent. When the offside of the foal is to be brushed, the man should not attempt to make the foal "come over;" that can be taught at a later stage: but the man should cross in front of the foal, and, taking the rein in his left

hand, should brush the foal over with his right. Continue this treatment daily till the pupil loses all fear of the chain, rein and brush. The next stage is tying up to the rack chain. After having brushed over the foal, with the long rein attached, take off the rein and tie the foal to the rack chain with a piece of stout twine, strong enough not to break at a moderate strain, but which will snap promptly if the foal rears or throws himself down. Do not attempt to brush the foal over; let him stand, unmolested in any way, for half-an-hour and thoroughly grasp the situation. Then let him loose. Continue this stage of the training until he is perfectly quiet and reconciled to being tied up. The long rein may then be discarded entirely, and the chain and twine can take its place, always remembering to brush the head and neck before the foal is tied up. Finally, when the foal has lost all nervousness, and is thoroughly cognisant of the role played by the chain, the twine can be dispensed with, and the chain attached direct to the head collar. The golden rule is "to make haste slowly"; to rush the foal to the second stage of the training before he is well grounded in the first, is to court a mishap, with its resulting attack of "nerves" and panic, which will tax the stud groom's patience and ingenuity to soothe.

The value of this thorough early training of foals in stable manners will be fully appreciated when they are "taken up" as yearlings to be prepared for their journey to the training stable or public sale. This final stage, which marks the end of the "beer and skittles" portion of the race-horse's career, will be got over in half the time and with twice the facility if the preliminary tuition during foalhood has been thorough. They will load on to rail or steamer handily, the trainer's task will be appreciably lessened, and accidents will be few and far between.

Chapter VII.

STALLION MANAGEMENT.

It has previously been stated that the Foaling Season is the most important and also the most anxious time for the stud groom. Nevertheless, the Covering Season, which in practice runs concurrently with the later stages of the other, brings its own crop of vexations and worries, such as the mares continually "breaking," *i.e.*, coming in season at regular intervals after services by the stallion, or not coming into "use" at all, and persistently refusing all advances by the stallion.

The methods that should be adopted to ensure the brood mare being in the best possible *breeding condition* have already been described. I will now give a few hints on the subject of getting stallions fit to do their part efficiently. At the outset I may state it is my firm conviction that when a mare fails to get in foal, nine times out of ten the blame must be laid on the mare and not on the stallion. If the reader will consider this proposition carefully, I think he will admit the reasonableness of it. For instance, there are practically only four causes of unfruitfulness in stallions, viz., senile decay, congenital impotence, excessive services, and want of exercise. With good management, the two latter faults do not exist, while the two former defects carry their own condemnation and sentence of banishment. On the mare's side, there are the many ailments of the generative organs, arising either from injuries sustained at parturition, or constitutional causes, fractiousness at covering time, "false prides," and last, but certainly not least, abortion during the first two months of pregnancy, when,

the fœtus being so small, the mishap is almost certain to escape notice, except by the merest chance. I am convinced that this early abortion is more common than is generally supposed, and that in many cases a stallion has incurred unmerited blame on account of it. Over-fatness is another cause of sterility in the mare, but, like want of exercise in the stallion, it does not occur with good management.

It is only reasonable to suppose that to ensure healthy, virile progeny it is essential that at the time of mating both parents should be in the best possible state of health. Over-feeding and want of exercise are fatal to the well-being of man or beast. Here, again, "fashion" decrees that a stallion must be "big" and of aldermanic proportions. When a horse leaves the racing stable and is retired to the stud, the critics who come to see him in his new sphere, while admiring his breeding and Turf performances, generally qualify their encomiums by prophesying that he will make a fine stallion when he has "thickened and let down." This, in plain English, means that although he may not grow one-hundredth part of an inch at the withers, or round the cannon bone, yet when he has put on a couple of hundredweight of flesh, or more likely fat, he will be entitled to be called "a fine stallion." The role of reformer is usually both unpleasant and unprofitable—to the reformer. I would therefore advise stud grooms to accept the dictates of "fashion," but to see to it that their stallions, if big, are not *soft*.

IMPORTANCE OF EXERCISE.

The stallion with from thirty to forty mares on his covering list will have a pretty considerable call made on his vitality during the covering season, which commonly lasts from February 15th to July 1st. To keep his vitality up to

concert pitch his food must be of the best, and liberal in quantity; but, the season ended, the ration should be cut down by two-thirds. The actual amount of corn allowed will vary according to the age and vigour of the individual stallion, to the number of mares to be put to him, and whether he puts on fat quickly, or is a shy or a gross feeder. During the covering season a generous ration should be allowed to support the demands made on his vitality, while in the "off" season just sufficient to keep him fresh and well is all that is necessary. Regarding food and exercise, the latter is by far the most important factor in keeping the stallion in tip-top breeding condition, for whereas the evil results of over-feeding might be counteracted by vigorous exercise, the combination of over-feeding and idleness would quickly lead to disaster.

Some of the results of insufficient exercise are the stable vices of crib-biting, weaving, self abuse, and kicking and biting; while out of doors the antics of a mad fresh horse are a source of danger to himself, his groom, and passing traffic. As to the best method of giving exercise to stallions, there is no doubt that having them ridden is by far the best —if it can be done with safety. But the fact is, that with most horses the first covering of a mare puts a brand new set of ideas into their heads, converting what was a pleasant hack into a rare handful. Any man has better control over a fractious horse on foot than when mounted; at any rate, the chances of a man keeping his feet are greater than those of his retaining his seat in a saddle. Again, there is less risk of a rearing stallion losing his balance and falling backwards when led, than there is with a man on his back hanging on to the reins. Good stallion men are not all good riders. The great advantage of riding the stallion at exercise consists in the greater amount of health-giving work he does in a given

time, compared with the led horse. Four miles an hour is good going for any man, yet at the end of a two hours' outing, eight miles having been reeled off, the groom at least will be tired, while his well-fed charge will not have turned a hair, but returns as jaunty as when he started out. The ridden stallion, on the other hand, in a two-hour spell of exercise will easily have covered twelve miles in his spells of alternate walking, trotting, and cantering, when his exercising ground permits of the latter.

As an alternative method, lungeing will ensure the led stallion getting trotting exercise, but there are drawbacks connected with this plan which make it doubtful whether the disadvantages do not outweigh the advantages. If one could ensure that the horse would trot sedately round, reversing at intervals, all would be well; but if out of sheer lightheartedness he gives a sudden buck and kick, and starts off at full gallop, there is a very real risk (especially if the ground be a trifle wet and greasy) of his legs slipping from under him as he circles round and his getting a dangerous fall. On the "ideal" stud the Sand Ring or the Roofed Covering Yard, with its tan or straw covering, reduce this particular risk to a minimum. The method of exercising must always be governed by the temperament of each individual stallion; but in any case two hours' daily exercise should be the minimum. Even where the practice of giving the stallion a grass paddock to run in prevails, it is probable that, during the covering season at least, two hours' vigorous exercise will be of very great assistance in fitting him for begetting healthy, vigorous progeny, except, perhaps, in the case of a very aged sire.

An important item in the economy of stallion management is the man who looks after him. Sobriety is, of course, a *sine quâ non;* but beyond this he should be quiet and even-

tempered. A high-tempered stallion and a hasty-tempered groom are a bad combination. Firmness without harshness is desirable; the man must be master, but not a tyrant. A timid man is quite out of place with a stallion, for the horse soon learns the man's secret and takes charge; or, the man to hide his "funk," shouts and bullies, with the result that the horse resents it and develops temper.

AN EASY "START" DESIRABLE.

Another point in stallion management, and one which is very frequently overlooked, is the desirability of bringing the stallion to what may be called the height of the covering season by graduated stages. Some grooms seem imbued with the idea that the stallion, during the annual "recess" between July 1st and February 15th, is busily storing up semen in readiness for the coming season, the first week of which, from their point of view, being the period when lavish calls on the horse's services will be most *easily* and satisfactorily responded to by the supposed accumulated seminal fluid. A little consideration will show the fallacy of this. The function of secretion, whether of saliva, milk, semen, or gastric juice, is entirely governed by the law of "supply and demand." When the demand ceases, supply stops forthwith. Consequently, when February 15th dawns, the stallion's semen-secreting glands have been lying dormant and idle for over seven months, and suddenly to call on him to make quickly-repeated services, would be on a par with taking a fat race-horse out of his stable, sticking the spurs into him, and sending him a racing-pace gallop without a preliminary walk or canter. The groom's object should be, by a sparing use of the stallion in the first weeks of the season, to bring the dormant secreting glands gradually to their fullest activity.

Chapter VIII.

COVERING TIME.

By way of preface to my notes on the actual business of covering mares, I should perhaps again point out that the common practice of starting the covering season on February 15th is a direct defiance of the laws of Nature. Nature never intended that a foal should be born on January 15th, when frost, snow, and cold winds are seasonable, and grass is conspicuous by its absence; nor, again, that the mare should come in "season" at such an inclement period of the year. This is another reason why, when mares prove troublesome to get "stinted" in February and March, the stallion should not be blamed for the failure. Most stud grooms have had experience of cold late Springs, when the mares either refused the advances of the stallion absolutely, or after one service pass all their "trials" satisfactorily and are thought to be safely in foal. Days pass and the services of the stallion are not required, and the stud groom is apt to indulge in the dangerous pastime of "counting chickens before they are hatched"; when, lo and behold, the weather undergoes a change as sudden as complete, and in the genial, balmy temperature the mares start "breaking" in all directions as though an epidemic had seized them. Then the stallion is kept very busy indeed for a spell, and usually with more successful results than followed his previous efforts.

Fighting Nature entails receiving some hard knocks. The modern two-year-old race-horse is an artificial product.

If I have to grow a horse that is required to race at two years of age, I should prefer that it be dropped at 12.5 a.m. on January 1st. Given proper facilities as to stabling, and straw-yard accommodation, I would guarantee that this January foal would not lose the four months' start it had obtained over a May 1st foal. Which of the respective dams of these foals would prove the easiest to get in foal again is quite another story. Under the Rules of Racing*, as is well known, the age of the thoroughbred horse is calculated from January 1st of the year in which it is foaled, *i.e.*, a foal born on December 31st would rank under the Rules as one year old the following day—a calamity that would entail its carrying the weight of a three-year-old in weight-for-age races, while still only a two-year-old. This, of course, would be a handicap sufficient to blight the Turf career of anything less than a "horse of the century." As the fact of a mare foaling three weeks before her proper time is far from an uncommon event, it is obvious that in having a mare covered before February 15th a tremendous risk is run of having that most unwelcome of all "little strangers"—a December foal.

I have already hinted that "Covering Time" runs "Foaling Time" very close in regard to the demands it makes on the stud groom's time. A great deal will depend on his good judgment and management whether the subsequent foal crop is satisfactory or the reverse. Much has been said and written as to the relative values of theory and practice; personally, I am convinced that a little study of the theory of the intercourse of the equine sexes will be helpful when the practical part of the business has to be taken in hand. Let us see what happens when the stallion is

* South of the Equator the age of a thoroughbred is dated from August 1st.

allowed to run loose with his allotted band of mares on the prairie. His harem comprises in-foal mares, barren, and maiden mares. During the Winter months he pays no attention to them other than to prevent them leaving his harem. Spring arrives with its warm sunshine, and one day some subtle change in one of his protégés arouses his interest. For the next day or two his investigations are met with ears laid back and threatening heels, but gradually these well-understood warnings to "keep his distance" diminish in vigour, vanishing at last in complete surrender. This latter state of affairs continues for two or three days during which the mare solicits and welcomes the stallion's attentions. Then follows a peevish resentment, and finally the stallion transfers his patronage to another quarter of his harem where there are indications that his advances will be better appreciated. The outstanding moral to this Nature lesson is that coercion and violence are quite out of place. Mutual desire is the keynote. For many good and sufficient reasons, letting the stallion run at large with the mares is a practice which finds no place in the management of a thoroughbred stud farm, but the lessons learned from observing the mare and stallion when in a natural environment can with the greatest advantage be applied to them under quite different circumstances. The methods of application may have to be changed, but the broad principles underlying them will remain unchanged.

"TRYING" MARES.

So much for theory; now for the practice. In the case of barren and "maiden" mares it is a good plan to start "trying" them with the "teaser," or the stallion, as the case may be, on February 1st. This practice with maiden mares serves to overcome their natural nervousness at the novel

attentions of the eager teaser, and will greatly facilitate matters when the actual "covering" operations have to be taken in hand. The advantage of this preliminary "trying" with a barren mare is that one may get a clue as to the likely date she will be in "season" from February 15th onward. For instance, supposing a mare responded kindly to the teaser's advances on February 5th, we could then calculate that by February 10th the "heat" would be at an end. Allowing fourteen days to elapse before the next period of "heat" could be expected to commence, it would be safe to expect her to be quite ready for the stallion on or about February 27th.

In the case of foaling mares, the majority will be found ready for the horse on the ninth day after foaling; but, as others respond quite readily to his advances on the seventh day, it is a safe rule to "try" all mares on that date, to avoid the ill-luck of missing the first "pride" altogether, because it frequently happens that these seventh day mares when not tried till the ninth day are then found to be just "going off." In the absence of the preliminary trial the stud groom naturally supposes that she is only just "coming on" and will be "ripe" in a day or so, only to find each succeeding day that she grows more violent and restive at the teasing bar, till it finally dawns on him that he has missed the "physiological moment." Many mares when tried on the seventh and ninth days after foaling show faint signs at the latter trial, but not sufficient to warrant the horse being put on them. These mares will generally be found well in "season" on the eleventh or twelfth days. The best general practice with foaling mares is to try every day from the seventh after foaling till a satisfactory response is obtained, up to the fifteenth day, when, in the event of failure, I would advise a complete cessation of trials for the next six

days. On the twenty-first day after foaling I would try again, and if still without result would postpone further annoyance of the mare till the thirtieth day after foaling, when I would recommence and try daily for the ensuing seven days. It would be well to keep a close watch on these mares when in the paddocks for suspicious signs during the intervals when "trying" operations have been temporarily discontinued, as some mares are a law unto themselves, and set all rules, regulations, and dates at defiance.

In no detail of stud management are gentle methods more essential than at the teasing bar. I have seen mares brought up to the "bar" whose every action cried aloud their repugnance to the teaser's advances, yet they have been forced, with blows and shouts, within reach of his nipping teeth. Many mares are completely spoilt by this senseless treatment, and it often takes years to eradicate the memory of this harshness. I trust I have made it clear that dates as dates must not be made a kind of fetish to be slavishly adhered to. Dates are "a useful guide to probabilities"; a mare should not be covered solely because it is her ninth day, but should only be covered when her actions show plainly that she would welcome the attentions of the sire, be it on the ninth or ninty-ninth day.

THE NECESSARY SPECULUM.

On the "ideal" stud farm the stud groom's "medicine" chest will not be complete unless it contains a speculum and an inseminator. I am aware that some stud grooms (of the old school) look somewhat askance at these instruments of comparatively modern introduction, more especially as regards the inseminator. For myself, I am convinced that the speculum, at least, is an almost *indispensable* instrument during covering time. Even "the boys of the old brigade"

practise what is called "opening" the mares, *i.e.*, introducing the arm into the vagina, and feeling if the "os uteri" or neck of the womb is open. By using the speculum one does not have to depend on feeling, one can *see*, not only whether the os is dilated, but also if there is any inflammation of the membranes, gleet, bruises or ulcerations. The intelligent use of the speculum is a great conserver of the vitality of the stallion. In the case of many mares, the preliminary use of the speculum will disclose a condition of the generative organs which renders the service of the stallion useless. And not only that; the examination may show that the service will be calculated to aggravate the mare's ailment, and possibly result in the infection of other mares on the horse's "list." I would, therefore, strongly advise that when a mare has been found well "in season" that the speculum should always be used before deciding whether to put the horse on her or not. In many cases missing a "pride" may, from the point of view of ultimately getting the mare in foal, prove a saving instead of a loss of time. It is of little use taking special pains to have your stallion in the pink of covering condition and then being careless as to the state of health of the mares to be put to him.

Every cover made by the stallion makes a demand on his vitality; repeated demands on that vitality lower it, and it is only common sense to suppose that the state of health at the time of service will be faithfully reflected in the progeny resulting from such service. The stud groom, therefore, should make it his especial care to see that his stallion's powers should not be wantonly wasted. I am not suggesting that a lavish use of the stallion (unless carried to reckless lengths) will necessarily curtail the number of his crop of foals. The quantity may not suffer, but the *quality*

undoubtedly will; it may mean all the difference between a selling plater and a Derby horse. Instances are not few of stallions which have languished in comparative obscurity, getting only a few mares each season, coming with a bound, as it were, to fashion and popularity, owing to some phenomenal colt or filly they have sired. With a full list of from 40 to 50 mares as opposed to previous lists of 10 or 12, his chances of begetting good race-horses should, in theory, be proportionately increased; but, in practice, the reverse is the case. His foal crop is larger, but they are of mediocre calibre, and the prodigies, though eagerly anticipated, fail to materialise. I recall a case where a stallion had 38 living foals to his credit one season, and the fact was made the subject of much laudatory comment. I would suggest, that had the vital force expended in begetting those 38 foals been concentrated in begetting just half that number, viz., 19, that stallion's chance of filling a niche in the equine Temple of Fame would have been considerably enhanced.

Having "tried" the mare at the teasing bar, and found her quiet, and showing unmistakable signs of reciprocating the teaser's desires, the mare should be taken into a box, a fore foot held up as a precaution against an unexpected kick, and an examination of the generative organs made through the speculum. If the lining membranes are inflamed looking, streaked here and there with dark discoloured patches, accompanied with a discharge of a sticky gleety nature, decide at once to miss the "pride." Have the vagina washed out twice daily with a solution of chinasol (one tabloid to a quart of water) till these symptoms are eradicated. If the examination reveals a badly-bruised or torn os uteri, the usual result of a difficult foaling, postpone the service no matter how "ripe" in season the mare may be, for a service when the organs are in this condition

will be such a painful function as to ensure a struggle to escape from the stallion's attentions, resulting in a scrambling unsatisfactory service, which will be in a double sense barren of result.

Another very important state of affairs frequently brought to light by the use of the speculum is the following: The membraneous lining to the vagina is of the normal pink colour, free from inflammation or offensive discharge, but the os uteri, or neck of the womb, is seen projecting out into the vaginal passage, erect and rigid like a piece of cartilage. The effect of this erection of the os is that the passage through it leading to the womb is so constricted that it is almost hermetically sealed. Obviously, while this condition remains, the "seed" of the stallion will have little chance of entering the womb and passing thence *via* the fallopian tubes to meet the ovum, or egg, of the mare. The normal condition of the os, that is during pregnancy or during the intervals between the periods of œstrum or "heat," is for its passage to be tightly closed. My physiological knowledge is so meagre that I cannot attempt to give technical descriptions of the various functions of the mare's generative system; on the other hand, my cursory study of the literature of the subject, combined with practical observation, and the deciphering of Nature's signs, have led me to the final conclusion that the condition of the os uteri is the key to the problem, *i.e.*, "to be or not to be" in foal. When parturition draws near, Nature's preparatory handiwork is shown in the falling in or relaxation of the muscles on each side of the mare's croup, and in the dilation of the vulva and os uteri, which facilitates the passage of the foal. When the mare's ovum or egg ripens or matures—which stage is marked by the œstrum or "heat" commencing—Nature's signal is the relaxation or dilation of the vulva and os uteri

to facilitate the passage of the sperm cell of the stallion into the uterus of the mare on its way to meet the germ cell or ovum descending via the fallopian tubes. Broadly speaking, the period of œstrum lasts about seven days. Again, speaking generally, it will be found that for the first two days there is little or no change as regards dilation of the os; the next three days there is full dilation, followed during the final two days by a rapidly increasing contraction.

The author's practice, when examination by aid of the speculum reveals rigidity of the os to be present, is to postpone service for that day, and to examine the mare morning and afternoon each succeeding day till the os is found fully relaxed and dilated. It is somewhat difficult to give a satisfactory pen picture of the contrast between the two conditions. I can think of no more apt illustration than this: The tight, hard rosebud represents the rigid os, the full-blown rose just past its prime the relaxed. The full-blown rose stage, concurrent with a clean normal-coloured mucous membrane, is the physiological moment for service to take place, when the chances of conception are 99 per cent. A mare may be covered four days in succession during the "heat," yet if a foal results it is the fruit of one only of these services; the other three represent so much squandered vitality on the stallion's part. The practice of some stud grooms is to have the mare covered the first day she comes kindly into "use," then miss a day, cover again the following day, miss the next day, and then the following day, if the mare is still kindly in "season," to give her a third and final service. I readily admit that under this system the resulting foal crop is generally satisfactory as regards numbers, but what of the quality? If stallion No. 1 covers twelve mares three times each, and stallion No. 2 covers twelve once each, and twenty-four foals result, will it be

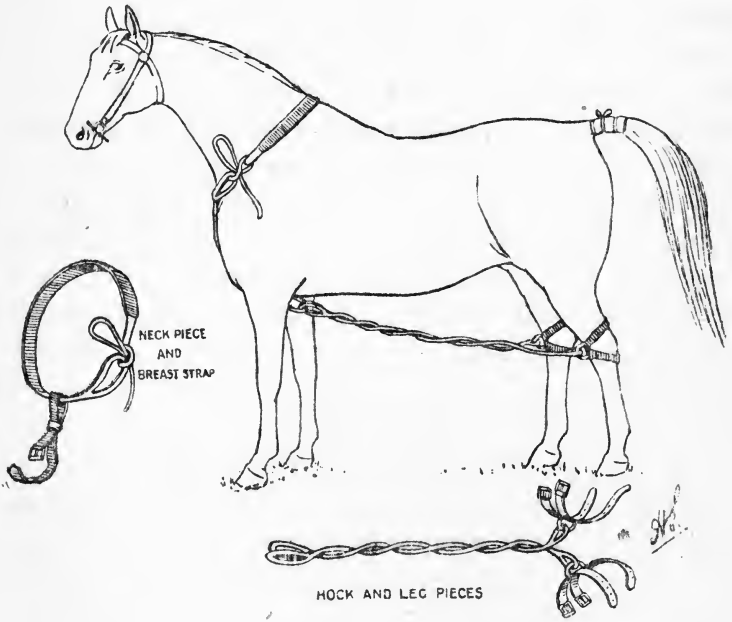
seriously disputed that stallion No. 2 batch will be more virile than stallion No. 1 batch? If so much is granted, does it not follow that if stallion No. 2 covers twenty-four mares once only with successful results, the two dozen foals would still have a margin of advantage in respect of vitality over the dozen that were the result of thirty-six covers? My point is, that the three-service man trusts to luck to hit on the "physiological moment," while the speculum man depends on his instrument as a guide as to when the iron is hot enough to be struck with effect. Of course, there are times when theories and ideals have to go by the board. For instance, when it happens that three or four mares are simultaneously in the desired condition, the calls on the stallion must of necessity rapidly follow each other, lest the golden opportunity slip and valuable time be lost in consequence. Subject to these unavoidable conditions, an "ideal" rule would be, that the stallion should make one service every other day.

THE SERVICE.

And now to come to the actual Covering Operations. The mare being found in a complacent mood, and the generative organs in ideal condition, she can be taken to the covering yard and securely hobbled. Various types of hobbles are in use, but the essentials of good ones are that they should be soft and pliable, but of undoubted strength. On the next page I have roughly sketched the kind of hobbles and methods of fixing them favoured by me.

The material is soft cotton rope, five-eighths of an inch in thickness, the neck piece covered with soft leather to prevent it chafing the mare should she struggle. The hock straps are of stout pliable leather, crossed, and with strong iron D's attached, to which the two leg ropes are

permanently looped. Put the neck piece on first, fastened with a running bow knot, as per illustration; this will permit of the mare being quickly released in the event of an accident, such as the mare throwing herself down, or the stallion getting entangled in the hobbles. Then adjust the hock straps, twist the two leg ropes together, and pass the breast strap through their loops and buckle taut; not so tight as to



prevent all movement of the mare, but just tight enough to ensure that she cannot harm the stallion if his too robust attentions should ruffle her temper and start her kicking. The hairs at the root of the tail should be caught up and held by a few turns with a piece of tape. This prevents loose hairs being forced into the vulva and subsequent laceration of the stallion's penis during service.

The mare being now ready, the stallion is brought out. Stallions differ greatly in temperament, some being quiet and tractable, while others are just as excited and noisy. It goes without saying that the quieter the service the better the chance of a satisfactory result. The expenditure of a little extra time and trouble on the tuition of the stallion when he is first introduced to stud duties will be amply repaid in future years; it will mean all the difference between a workman and a bungler. There is a right and a wrong way of doing most things, and as prevention is better than cure, special pains should be taken to instruct the equine novice in the *right* way. For instance, throwing open the stallion's door and letting him come charging out and straight at and on to the mare might possibly cause no trouble with a very quiet, experienced old mare; but in the case of a young or high-strung nervous mare it might easily be the cause of injury to man or beast, and would certainly turn the business into a "rough and tumble catch-as-catch-can" affair. The stallion must be taught to curb his amorous excitement, and be made to understand that the groom is running the show and not he.

Bring the stallion out, make him stand three or four yards away from the mare, not in a direct line behind her, but to the near side of her so that mare and horse form two sides of a square. The mare can thus see all the stallion's movements, and when she shows signs of understanding his intentions, let him step forward, wheel and mount. An assistant on the off side pulls the mare's tail towards him with his left hand, and places his right hand on the mare's hip to keep her steady. The stallion man places his left hand on the mare's near hip, and guides the horse's penis into the vagina with his right. The horse being entered, the hold on the mare's head should be relaxed so as to allow

her to move forward a step or two and accommodate herself to the horse's movements. When the horse has finished, pull the mare's head short round to the near side and let her take a step in that direction, this greatly facilitates the horse's dismounting. Take the hobbles off the mare quickly and lead her about quietly for ten or fifteen minutes, not letting her stop to "strain." Then shut her up in her box for the rest of the day.

Take the stallion back to his box, tie him up and sponge his chest, arms, belly, stifles and sheath with a weak solution of chinasol. This will remove the scent of the mare from these parts, and prevent him acquiring objectionable tricks. If manipulating his sheath annoys him too much, it is best to discontinue that part of the routine. With a great many stallions, it is often difficult to be absolutely certain that they have thrown the seminal fluid when covering a mare. This is especially the case when the horse has been called on to cover several mares in quick succession. I have had experienced stallion grooms assure me that a certain service was satisfactory beyond a doubt, which the prompt use of the speculum has proved to be quite the reverse. The proper method, no matter how clever and experienced the stallion man considers himself, is to insist on his "testing" every service by placing a finger very lightly on the under side of the horse's penis towards the close of the service, when, if the service is satisfactory, the impulse throb will plainly be felt, and all doubt be set at rest.

Another bad practice one frequently sees at serving time is that of the man at the mare's head holding her in a vice-like grip, occasionally actually pushing the mare back on to the stallion. I have often wished at such times that such men could have seen mares being covered on the prairie

when running loose with the stallion. They would have learnt that under natural conditions, though the mare usually moves forward a step or so, she never by any chance moves *backwards*. It is obvious that a stallion having a good grip of a mare with his forelegs would experience little difficulty in following up any forward movement on her part, whereas any backing of the mare on to the stallion would tend to make him over-balance backwards.

Regarding the question of allowing the stallion to tease and "try" his own mares, one should be entirely governed by circumstances. If the horse's "list" is a light one, and he is not cursed with a vicious disposition, there is no valid reason why he should not "try" his own mares; but with a full list of say forty mares, a teaser is almost a necessity, as the drain on the stallion's vitality from actual services will be quite heavy enough without his being called on to fill in his spare time, as it were, "trying" mares, with its accompanying sexual excitement. A bout at the teasing bar is generally a necessity in the case of the young stallion with his first mare. Without this preliminary it is often difficult to make him "catch on" to what is required of him. A few minutes in actual contact, over the teasing bar, with a mare "dead" in season, will usually be all sufficient to rouse his latent sexual instinct, and all that will be required to ensure a satisfactory debut will be a little patience, a little firmness on the groom's part, and a quiet old mare who will not resent the clumsiness natural to a novice.

Maiden mares, as a rule, give far more trouble than the young stallion at their first service. Their efforts to free themselves from the hobbles are often more violent than their efforts to escape from the novelty of the stallion's embrace. The chances of nasty accidents to both man and

beast are so many when maiden mares are taken in hand that it is essential nothing should be taken on trust, nothing left to chance. Take the mare into the covering yard, put a strong twitch on her muzzle with a six-foot long handle and a fifteen stone man at the end of it, whose resolution is equal to his weight. Then hobble the mare securely. If she plunges and fights the hobbles, let her have a good "go in." When she is tired out and realises the futility of her efforts to free herself, bring in the teaser; let him mount and dismount till she resigns herself quietly to his embrace. Then bring in the stallion and make the service proper. Needless to say, care must be taken that the teaser does not actually serve the mare; that would be a calamity indeed. To prevent this the groom grasps the teaser's penis and guides it to one side. The advantage of letting the teaser take the hard knocks and risks incidental to covering a maiden mare, instead of a valuable stallion commanding a 200 guinea fee, is obvious. Besides, an unruly young mare is apt to spoil the stallion's temper and make him rough and spiteful with other mares.

As to the advisability of "cross," or second, services, there is a divergence of opinion. It is certain that no matter how many services are made, if a foal results, it is the fruit of one only of these services; the rest are so much waste. If the stallion is very busy, and the use of the speculum has demonstrated that the mare's organs are in ideal condition to conceive, I am quite content with one satisfactory service; but if the stallion is having a slack time, and if, after the lapse of one day, I still find the mare well "in season," and the os still nicely dilated, I never hesitate to give a "cross" or second service. Indeed, at the fag end of the covering season, in the case of mares that have been continually "breaking," and are still, like Oliver

Twist, asking for more, I give a third service in the hope of winding up the season satisfactorily. Here I should point out that the stud groom's suspicions should be at once aroused when a mare keeps "breaking" so often as to be practically always "in use." The use of the speculum in such cases will nearly always disclose an inflamed condition of the vagina and os uteri, accompanied with an acrid gleety discharge quite sufficient to destroy all life in the stallion's semen the moment it comes in contact with it. Even if no speculum is available, the tell-tale signs round the vulva and the matted hair on the underside of the tail are eloquent clues to the state of the mare's generative organs. From my experience of such mares, I am absolutely convinced that "cross" services, third, fourth and even fifth services are all unavailing—in fact, are only aggravating the trouble by the irritation they cause; and the nett result of all the extra calls on the stallion will, in 99 cases out of 100, be a barren mare the following year. In such cases the only plan of campaign that offers any chance of ultimate success is firmly to resolve not to cover the patient till a daily irrigation of the generative organs with an antiseptic tonic wash has brought a clean, healthy mucous membrane into existence. The stud groom may have qualms as week after week of the covering season slips quickly by with the mare still uncovered, but he must make his choice between a possible late foal and no foal at all, plus a big waste of the stallion's powers.

THE INSEMINATOR.

The inseminator, although a very useful instrument on a stud farm, has its limitations. For one thing, when gleet or leucorrhœa are present in the mare, the nature of the discharge is such as to be destructive of the living sperm cell of

the stallion, whether placed in the vagina by the stallion or into the womb by the inseminator. On the other hand, the value of the inseminator is manifest when the os or neck of the womb has, through injury at foaling time, become scirrhous and incapable of dilating sufficiently to admit of the passage of the "seed" of the stallion into the uterus or womb. Here it may be noted that although the authorities are not quite agreed on the question whether the spermatic fluid of the horse can be discharged directly into the uterus or womb by the stallion during coition, or is always deposited on the floor of the vagina whence the spermatozoa make their way to the uterus and fallopian tubes by their own powers of locomotion, yet all are agreed that the fertilized ovum will have little chance of further development if the womb is not in a perfectly healthy condition.

"Many mares fail to breed, not from any structural defect of the reproductive organs, but from a functional derangement of the mucous membrane of the uterus or vagina, whose vitiated secretion imperils, if it does not immediately destroy, the life of the spermatozoa, or, should they escape and impregnation take place, the fertilized ovum sooner or later succumbs to its unhealthy environment." (*Professor Axe.*) This quotation affords further proof of the correctness of the author's contention that "when a mare fails to get in foal, nine times out of ten the blame must be laid on the mare and not on the stallion," and that what in stud parlance is termed "turning" or "breaking" to such and such a horse, would be more fairly described as "*aborting*" to him. In practice it will generally be found that once functional ailments of the mare's generative organs have been treated and overcome, the inseminator will be a superfluity; whereas in cases of

structural malformations its employment becomes almost a necessity.

It is imperative that the inseminator should be kept scrupulously clean by storing it in a dust-proof case, and by sterilising it after use. When about to operate, the stud groom, whose hands should be well washed with carbolic soap, and whose finger nails must be closely pared, procures two buckets of water previously sterilised by boiling and allowed to cool off to about blood heat. Into one of these the inseminator is plunged, with the piston rod pushed home to prevent the ingress of water through the nozzle. Take the other bucket of water, and with several tampons of cotton wool swab out the vagina thoroughly, paying special attention to the neck of the womb. Throw each tampon when soiled to one side and not into the clean water. When all superfluous moisture has been swabbed up, and care been taken to ascertain that no small detached portions of cotton wool are left within the vagina, the lips of the vulva, the anus, and perineum should quickly be cleansed, and the stallion brought out to make the service. I should have mentioned that some practitioners recommend the addition of a little permanganate of potash or bi-carbonate of soda to the water used for the preliminary swab out of the vagina; but the effect of either of these chemicals on the spermatozoa being at least problematical, I have so far been content to rely solely on pure water, thoroughly sterilised, for cleansing purposes.

Having rolled up his shirt sleeve on the left arm well above the elbow, the operator will "stand by" while the horse completes the service. As the horse dismounts, the operator takes the inseminator from the bucket in his right hand, plunges his left arm into the warm water (this facilitates entry to the vulva) and smartly, but without undue

violence, introduces the left arm into the vagina. The right hand then passes the inseminator into the vagina, where its nozzle is gripped by the fingers of the left hand and guided into the pool of semen lying there, and held firmly while the right hand draws up the piston rod of the inseminator, and thus picks up a charge of semen. The best type of instrument is fitted with a small glass slide which enables the operator to make certain that semen has been collected. Having ascertained this to be the case, the inseminator is again pushed forward, and is carefully introduced with the fingers of the left hand through the os and well into the womb; the piston rod is pushed down with the right hand and the charge of semen expelled, thus completing the operation. I need hardly point out that in the case of twisted or deformed os great care should be taken that brute force is not used to gain a passage for the nozzle of the inseminator. An examination should be made previous to the service, and the direction of the twist ascertained by dilating the os with a forefinger.

Another case for the use of the inseminator is that of abnormal shortness of the vagina sometimes present in mares, usually with young maiden fillies. The result of this condition of the vagina is that the organ is forcibly pushed forward by the horse's penis during service, and rebounds with such force when the penis is withdrawn, as to expel all the semen on to the ground. All that can be done under these circumstances is to have an assistant, as the horse dismounts, ready with a warmed tin cup in which to catch the semen as it is expelled. It is then gathered up by the inseminator, and placed into the womb as described above. Some dexterity is required to prevent the cup being struck by the stallion's foreleg when dismounting, and no time should be lost in transferring the semen to the womb, as a

very short exposure to air and light would be fatal to the spermatozoa. The inseminator may also usefully be employed when, during the time the mare is "in season," there is no sign, after several days have passed, of there being a relaxation or dilation of the os. Personally, I am of opinion that it is very rare for the mare to pass through the period of œstrum without the os becoming dilated for a time, which may be short or long according to the temperament of the individual mare. However this may be, it is good practice, when the covering season is getting advanced and the mare shows no sign of a dilated os, to have her covered as the end of the "pride" approaches, and, with the inseminator, to pass the semen carefully through the rigid os into the womb. Although I hold the opinion that an inseminator is an indispensable item in the stud groom's medicine cupboard, I also hold just as strongly that Nature's plans are best, and that the instrument should be held in reserve, only to be called up to her assistance when she is in difficulties—generally, it must be admitted, of man's making.

As to "trials" after service, the practice differs on different stud farms. I am quite content to adhere to a system I have proved to be successful when judged by results. I try the mare lightly on the fourteenth day after service; seven days later I test her thoroughly, and twice a week thereafter till the season ends. If a mare is not "stinted" she usually comes in "season" on the twenty-first day after the previous service. Subject to what I have already stated as to the effects of cold, harsh weather on mares coming, or rather not coming, into "use," I feel safe in saying that the majority of mares that "break" after safely passing their thirtieth-day trial have in reality aborted.

Chapter IX.

THE SHOEING SMITH'S DUTIES.

During the season of the year when the stud groom's time will chiefly be occupied with foaling, "trying," and covering operations, there will be many other little details that require his attention. The yearlings must be watched, and as the grass improves in quantity and quality, their corn ration may be proportionately reduced. Their feet also should have close attention. "No foot, no horse" may be a trite saying, but in no case is it more applicable than when young thoroughbreds are in question. The strength of the chain is that of its weakest link, and aristocratic lineage and grand bodily make and shape are all discounted by a set of malformed feet. It behoves the stud groom, therefore, to keep a watchful eye on the feet of his charges.

The thoroughbred foal and yearling usually spend most of their time roaming about on soft springy turf; consequently the horn of which the hoof is constructed is secreted much faster than it can be worn away, and if no steps are taken to redress the balance between growth and wear, trouble will ensue. The smith should go his rounds without fail once a month as a matter of routine, and as often on intermediate days as necessity may require. The rasp alone should be used, the employment of the drawing knife being absolutely forbidden. It may be thought that this latter prohibition is a superfluity where an experienced shoeing smith is concerned, but I have had experience not once but

several times of the reverse being the case. I have seen the smith pick up a practically perfect foot, with a fine wide "frog" and prominent "bars," and calmly, and as a matter of routine, take a goodly slice off each side of the frog, pare the "bars" almost out of existence, ending up by cutting nicks at the extreme heel of the hoof between the frog and walls. The stereotyped answer to a query as to the reason for this mutilation was "opening the heels." I have always attempted to explain on such occasions how eminently calculated such methods were to defeat the very object they were intended to facilitate. If the reader will look at the outline of a horse's hoof, sketched in Fig. 3, he will readily perceive why. Capt. Hayes, in his "Veterinary Notes for Horse Owners," page 644, says:—"An examination of the horse's foot shows us that the horn at the heels is secreted by the membrane which is wrapped round the ends of the wings of the pedal bone. Hence it is really impossible to open out the heels without first fracturing the pedal bone. To use Professor Williams' words, the hoof is a 'simple horny box,' which neither expands nor contracts, as these terms are popularly understood." A glance at Fig. 3 will show that the only place where expansion or contraction would be likely to take place is at points B and C. The bars D D, which are continuations of the wall A, are the lateral braces or supports, the internal space between which is further reinforced by the fully developed frog E. It is obvious that if the bars are pared away, and the frog reduced in width, contraction, or, for that matter, expansion, between B and C is facilitated. Hence my contention that "opening out the heels" with the knife is wrong both in theory and practice.

The only tool the shoeing smith will require when dealing with a normal foot is a small rasp, with which he will

remove the superfluous horn that has grown during a month's locomotion on soft thick turf.

The all-important point to be kept in view is to leave an absolutely level ground surface of the "wall" or outside edge of the hoof. The importance of having a true level to the wall or weight-bearing rim of the foot will be apparent from a glance at Figs. 1 and 2. In Fig. 1 is shown a section of the foreleg comprising the cannon-bone (A), the long

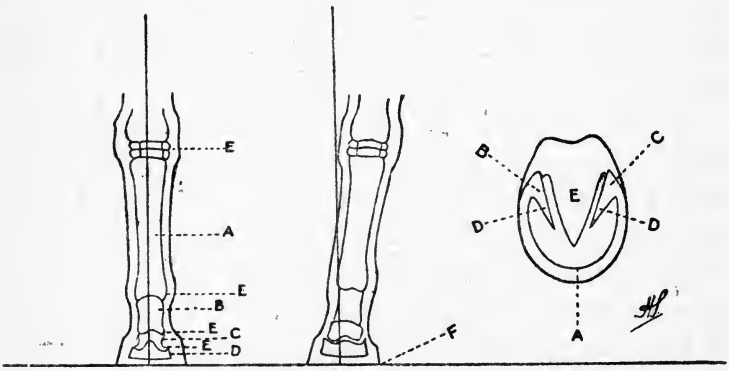


Fig. 1. Fig. 2. Fig. 3.

A—Cannon Bone.
B—Long Pastern Bone.
C—Short Pastern Bone.
D—Coffin Bone.
E—Joints.

A, B, C—Wall.
D—Bars.
E—Frog.

pastern bone (B), short pastern bone (C), pedal bone (D). These four bones are connected by means of three perfect fitting joints (E, E, E), the respective bones not being in actual contact, but separated at each joint by their articulating cartilages kept constantly lubricated by the synovial fluid, which permits of the respective joints sliding over one another smoothly and without undue effort. If the foot is truly levelled and the horse stands on ground also perfectly level, a straight line drawn through the centre of these three joints from ground to knee will show that the horse's body

weight falls on the joints squarely and evenly. But if, say, the inside wall of the foot be lowered more than the outside, as in Fig. 2, F, it is obvious that an uneven strain will be thrown on the joints, which no amount of lubrication will prevent from working stiffly, and in racing at top speed cause the horse to become what is termed "leg weary." In making this last statement, it is possible I may be skating on thin ice, and it may be asked what a mere stud groom can know about training race-horses. My answer is, that there are plenty of men who have won their spurs as stud grooms who would have been equally successful as trainers, but for lack of one great essential—opportunity.

This by the way. To return to the foal's and yearling's feet, I must point out that whereas horses, blessed from birth with a set of true straight limbs, can be kept so by keeping the feet perfectly level, on the other hand, a set of crooked legs can be improved, if not completely cured, by a judicious use of the smith's rasp. If faulty conformation of legs will not yield to persistent treatment during their growing and developing stage, they are not likely to do so when all growth has ceased, and the horse's limbs have become set and matured. The three commonest forms of faulty leg conformation met with are what are termed in plain stable language:—Pigeon Toes, Fig. 4; Splay Foot, Fig. 5; Upright Pasterns, Fig. 6.

In "Pigeon Toes" (Fig. 4) the weight of the horse's forehand falls chiefly on the *outside* quarter (A) of the foot, which in consequence wears away much faster than the inside quarter, thereby facilitating the growth of the fetlock in a lateral instead of a perpendicular direction. The obvious treatment is to reverse matters by rasping the *inside* quarter down till it is lower than the outside quarter, which will have the tendency of bringing the twisted fetlock back

to the desired perpendicular position. The difficulty that often faces one in carrying out this plan is this: the outside quarter has become worn so low by the unequal weight it has carried, that in attempting to bring the inside quarter sufficiently low enough to reverse the slope of the foot, there is danger of so reducing the wall as to make the patient "tender footed." In the case of a young foal, all one can do is to endeavour to keep the two quarters of the hoof as nearly level as possible, using the rasp to balance the inequalities of wear and tear until such time as shoes can be

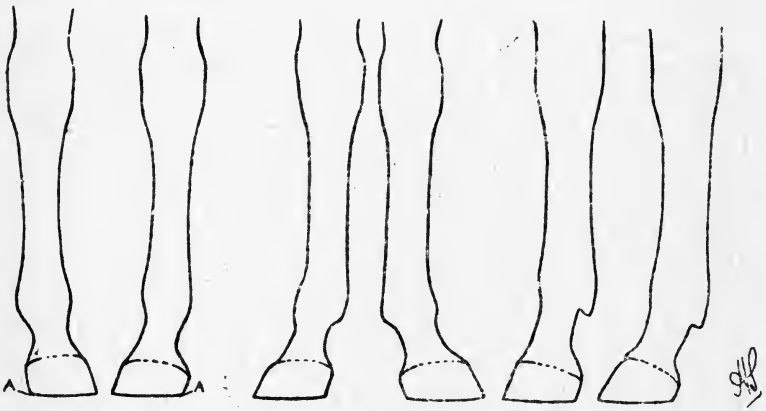


Fig. 4. Fig. 5. Fig. 6. Fig. 7.

put on with safety; then the trouble can be tackled in earnest. If, when preparing the foot for the shoe, and after having lowered the inside quarter as much as can safely be done, it is found that the desired slope cannot be obtained, the shoe should be put on with a strip of sole leather under the *outside* quarter, which overcomes the difficulty. The foot, now protected from wear by its iron shoe, will make even growth all round, and at the expiration of three weeks or a month will require removing and

re-fitting. Three weeks' unretarded growth of horn will usually give ample margin to obtain the desired slope, but, if not, the leather strip may be continued another three weeks.

With a case of "Splay Foot" (Fig. 5) or "toeing out," the treatment suitable for "Pigeon Toes" is exactly reversed, *i.e.*, the outside quarter is lowered and the inside built up. "Upright Pasterns" (Fig. 6) can be improved by keeping the heels very low (Fig. 7), which will induce a more oblique slope of the pasterns.

An ailment of the feet, which if unchecked will cause lameness, is "thrush," but it seldom occurs where there is good management, as it is usually caused by foul bedding and letting the hoofs grow too long. The seat of the disease is in the cleft of the frog, whence it penetrates to the sensitive parts of the foot. The frog acts as a protecting buffer to the pedal bone, and shares its weight-bearing function equally with the "wall" and its continuations, the "bars." Unlike the walls and bars, which will grow to an indefinite length if not worn or pared down, the frogs do not grow beyond a certain limit. Consequently, when the walls and bars grow too long, the frog is relieved of all pressure, and for want of use shrivels up and loses its healthy condition, and readily succumbs to moisture and filth.

The best treatment for "thrush" is to give plenty of frog pressure by lowering the overgrown walls and bars, and stuffing plenty of burnt alum daily into the clefts of the frog with the back of a hoof picker. This applies to mild cases; in a bad case of neglected "thrush," when the frog has sloughed away, exposing the sensitive membranes, I will only say, in pursuance of my resolve not to pose as an amateur Vet.—call in the Stud's Veterinary Surgeon. If the smith trues the feet regularly each month, it is certain

that the Veterinary bill for the treatment of "thrush" will be infinitesimal. The foal's feet will not need attention till they are three months old, but after that should have a monthly over-hauling.

Yearlings' teeth sometimes give trouble, interfering with their eating. The edges of the molars or back grinders get serrated and sharp, lacerating the tongue and the membrane lining the mouth. When yearlings, or for that matter any horses, fail to clean out their mangers and there are no symptoms of illness present, an examination of the teeth will usually discover the cause of the trouble, which will need to be put right with the tooth rasp. Worms (intestinal) are sometimes the cause of an erratic appetite with young stock. There are plenty of Worm Powders on the market; the author has got very satisfactory results from those put up by Sowerby, V.S., of Hull.

Chapter X.

BREAKING YEARLINGS.

As in July and August the yearlings will be "running out" day and night, care must be taken, when they are "taken up" to handle, that the boxes they occupy are well ventilated with top doors, windows, and ventilators wide open, or an epidemic of "coughing" may delay operations and final departure, and perhaps spoil what would otherwise have been a profitable sale.

With regard to the advisability of keeping entire yearling colts in separate enclosures or in batches, it is difficult to give a really definite opinion. Neither plan is quite "ideal." Splints, curbs, and ricked backs are frequently the result of the whole-hearted wrestling bouts in which a party of generously-fed colts constantly indulge when running together. At the same time these early "battles" may ensure equanimity when the colts find themselves in a big jostling field at the starting gate. On the other hand, the isolated colt may, from idleness and monotony, acquire the serious vices of crib-biting and self-abuse, and in an unruly crowd at the starting gate be inclined to be unduly "touchy" and calfish. Black Arrow, Polar Star, White Eagle, Minoru, Prince Palatine, and Royal Realm are products of the isolation system, as are, I think, Ormonde, Orme, and Flying Fox.

The yearlings having been brought from the paddocks, the first step will be to put cavessons on them before taking

them into the sand ring, straw yard, ploughed field, long grass, stubble, or other suitable lungeing ground. To lunge a yearling, or for that matter any horse, at top speed on ordinary pasture in midsummer, when the ground is usually baked hard, would be the height of folly. But in suitable going no ill results need be apprehended, and it is beyond dispute that lungeing, intelligently carried out, is an indispensable adjunct to efficient breaking. If a batch of well-fed, high-spirited yearlings are led out for two hours, their pace will be regulated by the walking powers of their attendants. At the end of the two hours the men will be genuinely tired, but it will be different with the yearlings. The humourist of the batch (there are generally several) will be tempted to enliven the deadly monotony of the promenade with a sudden squeal, buck, and kick, which, if it catches the attendant off his guard, may mean a yearling loose with a 30ft. long lungeing rein dangling at his flying heels. Or, failing this calamity, his evil example will spread like an electric flash through the entire string, and instantly convert a comparative funeral procession into a wild melée. If steps are not taken to cope with this habit, the infection will increase from day to day, and attain such dangerous proportions that the daily outings of the yearlings will become a nerve-racking item in the stud groom's time table. If any horse is fresh, and unable to restrain his high spirits, all the thrashing in the world won't make him, physically, less fresh; it may cow him for the moment or rouse his resentment. But a good spell of work or exercise will actually take the freshness out of him, without leaving him sour and resentful at what he considers unmerited castigation.

The principle of "making haste slowly" applies with equal force to the breaking of yearlings as it does to the

handling of foals. There must be a well-thought-out plan of campaign, each phase of which should be so much preparatory work for the next. The work will then proceed quietly and with the minimum of friction between man and beast, and there will be little risk of the stud gaining an unenviable reputation for the number of halter-breaking, bridle-shy yearlings it turns out.

THE RESTRAINING CAVESSON.

The first day's operations with the yearlings should be confined to getting them used to being led in cavessons. Previous to this they will have been accustomed to be led in halters only, in which the nose-bands are pliant and loose fitting, and the leading reins attached to them at the back of the lower jaw. The nose-band of the cavesson, being of leather-covered hinged steel, is practically rigid when buckled up sufficiently tight to keep it in its proper position. Moreover, the leading-rein is attached to a ring in the front of the nose-band of the cavesson, instead of underneath the jaw, as with the halter. A mischievous, lusty yearling that, during the halter stage of his career, has had things a good deal his own way, is apt to be puzzled and alarmed the first time the rigid steel nose-band of the cavesson checks his exuberant sprits. It is only common-sense, therefore, to accustom the yearling to the novelty of the cavesson before proceeding to *lunge* him in it. It is hardly necessary to point out the desirability of having men of weight and strength and previous experience of yearling breaking at this stage.

Usually one lesson will be sufficient to convince a yearling that the cavesson is master of the situation, and the following day he may be initiated into the mysteries of lungeing. Three men will be necessary for the preliminary

lesson, two men to hold the lungeing rein, and one the whip. The latter starts the yearling going and follows him up, while the two former hang on and keep him from darting off at right angles. Although a whip is carried, it is not necessary to use it except occasionally to crack it at a lazy yearling. Usually the yearling dashes round faster than is desirable, but this is a fault which soon corrects itself, especially when the going is as soft and tiring as it should be. The duration of the lesson must be regulated by the condition of the yearling and the state of the weather. For instance, a prolonged spell of violent exercise on a broiling hot day would not be beneficial to a soft, fat yearling. The first day's lesson in lungeing should be confined to a thorough grounding in the simple act of travelling in a circle without fighting the restraining rein. When this is thoroughly learnt, the next step is "reversing," *i.e.*, circling from left to right, and then from right to left. In galloping in a circle from left to right, the yearling's body is canted over at an angle which throws a larger proportion of the bodily weight on to the off-side shoulder and limbs, than on to those of the near side. By frequently reversing the direction, the risk of over-straining one side is removed. The pupil may be a little dense and awkward in grasping what is required when first asked to "reverse," but a little patience will soon put things right. The best time to introduce the "reverse" to his notice is when he has been circling to the left long enough to be getting tired and is showing a desire to stop. Let him do so, the man with the whip then steps round and threatens him in front, which makes him turn with his face to the right. A sharp crack of the whip, and a threatening dart at him, starts him off in the desired direction, with the "whipper-in" close at his heels to prevent him changing his mind and his course.

YEARLING BREAKING BRIDLE.

Face p. 125.

When he again tires and stops, reverse the procedure. It is amusing to note how quickly a youngster will realise what is required of him if the above plan is carried out smartly and intelligently.

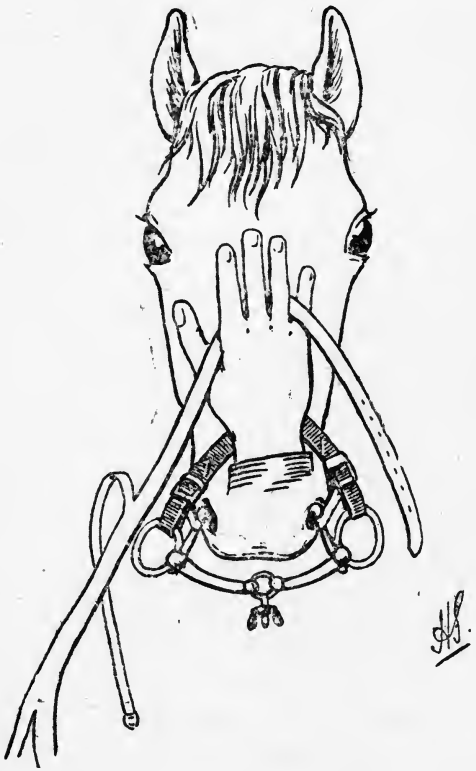
If matters in the meantime have progressed satisfactorily, on the fourth day "bitting" should be taken in hand.

The figure opposite illustrates a style of bit favoured by the author. It is a smooth, thick snaffle, with keys; the bottom halves of the cheek guards have been removed, and the top halves are held in position by "keepers" attached to the jaw pieces of the bridle. A pair of couplings connect the rings of the snaffle.

Getting bit and bridle on a yearling for the first time is really the most critical operation during the whole business of yearling breaking. Any bungling at the first lesson will cause great delay, and make big demands on the stud groom's stock of patience and good temper if a bridle-shy yearling is to be avoided. If the pupil has been thoroughly accustomed during foalhood to having its foretop and face handled, the operation of putting on its first bridle will be immensely facilitated. Although two men will be necessary to carry out the business smartly and efficiently, it is desirable that *control* of the yearling's head should devolve on the chief operator, *i.e.*, the person who actually gets the bit into the pupil's mouth; otherwise, in the event of the two operators getting at "cross purposes," the yearling may get rattled and a bungle result. Getting the bit into the colt's mouth usually presents no difficulty; trouble, if it occurs at all, begins when his ears have to be negotiated. It goes without saying, that the taller a man is, the more suited he is for this particular job. A short man attempting to put a first bridle on a tall yearling is at an obvious disadvantage.

PUTTING ON THE BRIDLE.

The author recommends the following method of bridling a yearling for the first time, with every confidence that, judged by results, it will not be found wanting. First of all remove the brow-band of the bridle; it can be dispensed with for at least a week, and longer if the yearling



proves an extra nervous subject about his ears. The couplings are also a superfluity at this stage. Next unbuckle the poll-piece from the jaw-piece on the near side. The chief operator takes the prepared bridle in his right

hand, the two cheek pieces being grasped together about six inches above the rings of the bit, the loose end of the unbuckled poll-piece hanging down over the back of the hand. Standing in front of the yearling, a little to the off-side, the operator now takes hold of the head collar with his left hand, to keep the pupil's head steady; he then quietly places the right hand, carrying the bridle, on the animal's face so that the bit hangs just below the lips. (See illustration opposite.) Give the yearling plenty of time to get used to this, then gently insert the fingers of the left hand into his mouth, keeping his head steady with the right hand on the nose. Work the fingers about in his mouth for a while, and finally prize it open with them; then gently slide the right hand, carrying the bridle, up his face till the bit enters his mouth. Hold steady at that for a second or two to give him confidence, then hook the little finger of the left hand through the off-side ring of the bit without releasing the grip of the head-collar. In one and the same deft movement, shift the right hand so as to grip the near side of the head-collar, and link up the near side ring of the bit on to the little finger. The position then is: the bit is in its proper position in the pupil's mouth, and should he toss his head about, the operator can restrain him comfortably by his double grip of the head-collar without putting the slightest pressure on the bit, which hangs loosely in the mouth supported on the hooked little fingers. The assistant then goes to the off-side and quietly manœuvres the unbuckled poll-piece of the bridle over the yearling's neck at a distance of about nine inches from his ears, leaving the loose end hanging down on the near side. Coming round to the near side again, the assistant just as carefully couples up this loose end of the poll-piece with the near side jaw-piece, and after gently

working the poll-piece into its proper position behind the ears, he buckles up the throat-lash and completes the job.

It may be urged that the above method leaves untouched the problem of getting the bridle *over* the yearling's ears, but the idea is to get the bridle on without a trial of strength between teacher and pupil. Later on, when the yearling has grown quite accustomed to wearing a bit and bridle, and the daily lungeing and walking exercise has quietened and steadied him generally, he will be much less likely to object to the poll-piece being passed over his ears than he would if the *entire* performance were a novelty. A man might be as tall as a giraffe, but if, at the critical moment, the yearling "ducked" his head, or swerved, or reared up, it is any odds on the man's intention being frustrated, unless by a big stroke of luck his "dash for the pole" materialised. Even then the victory might prove a costly one, for when next the bridle had to be put on, the yearling, forewarned, would be "looking for trouble."

The bridling operation having been successfully accomplished, the rings of the bit are connected by the couplings, the head-collar taken off and replaced by the cavesson, and the pupil is ready for his daily outing. The head-collar should be fitted with a buckle on the nose-band, otherwise it cannot be taken off the yearling whilst the bit is in his mouth. It is important to remember not to attempt to hold the yearling by the bit while this transfer of head-collar and cavesson is being made; he must be controlled by the hand placed on the face, sufficiently high up to avoid compressing the nostrils. After the day's spell of lungeing and walking is finished, and the yearling back in his box, it is a good plan to leave the bit and bridle on for an hour or two till feeding time, so that he gets thoroughly accustomed to having the bit in his mouth.

REMOVING THE BRIDLE.

When the bridle has to come off, just as much care should be exercised as when it was being put on. If it were pulled carelessly over his ears, he would most probably duck his head, thereby facilitating the poll-piece being brought over his ears; but the instant he felt the pressure of the bit on his mouth, he would either rear up or swerve sideways, and one of two things would be certain to happen. If the man hung on to the bridle, the yearling's jaw and teeth would get a painful wrench; if the man let go (which he had better do, as the lesser of two evils), the yearling, with the bridle hanging from his mouth, would be plunging round his box, too panic-stricken for the moment to open his mouth and let the bridle fall. The result will be that the next time the bridle has to be taken off, the colt is on the *qui vive* for a repetition of the bungling, and it will require great care and no little skill to restore his confidence and prevent him going from bad to worse. The horse is a very intelligent animal, but all the same is very prone to unreasoning panics. A very good illustration of this equine trait is seen when an inquisitive foal is investigating a piece of paper it has discovered in the paddock. From smelling it proceeds to nibbling; a puff of wind lifts the paper, like a live thing, into its face, and, with a "whouf" of terror, it is away with the rustling thing tightly held in its clenched teeth. It will wildly career round the paddock, trying to escape from the fluttering horror, being quite unable, in its blind panic, to realise that it has only to unclench its teeth to be at once rid of the fearsome thing.

To return to the yearling waiting to be unbridled. The first step after taking off the cavesson is to put on the head-collar. The chief operator, facing the yearling, grasps the cheek pieces of both head-collar and bridle in either hand;

the assistant, on the near side, unbuckles the poll-piece and the throat-lash, which, when thus divided, hang down over the "chief's" hands. The "chief" is now holding the yearling's head steady, and also keeping the bit in position in the animal's mouth. Without releasing his hold of the cheek pieces, the operator now gently prizes the yearling's mouth open with the three free fingers of the right hand. The bit gently drops out of the mouth, but is prevented from falling to the ground, and scaring the colt, by the left hand, which retains its grip of the cheek pieces of bridle and head-collar on the off-side. Then, taking the chin piece of the head-collar in the right hand, the "chief" hands his assistant the bridle and bit with his left, which is then at liberty to stroke the pupil's nose, the while he is being told what a good horse he is, and so on.

For the next few days it is well to stick closely to the above plans when putting on or taking off the bridle. When the yearling loses all signs of nervousness during these operations, the next stage is to accustom him to having the bridle put on and taken off by one man alone. When putting the bridle on single-handed, the operator will not disconnect the poll and cheek pieces, but let out the bridle to the fullest length, consistent with guarding against the possibility of its being so slack, when in its final position behind the ears, as to permit the bit falling out of the yearling's mouth. Grasping the two cheek pieces together in his left hand about nine inches above the rings of the bit, the operator grips the yearling's head-collar, on the near side, in his right hand. He then places his left hand, carrying the bridle, on the pupil's face in such a position as to leave the bit hanging just below his lips. With the fingers of the right hand he prizes open the animal's mouth, and then with the left hand draws the bit up into its place in

the yearling's mouth. Still steadying the yearling's head and retaining his hold of the two cheek pieces with his left hand, the operator now releases his grip of the head-collar, and with his free right hand takes the poll-piece by its top and carries it carefully over the yearling's ears, and releases it just behind them. Simultaneously with this release of the poll-piece, he relaxes his grip of the two cheek pieces, and allows them to pass to their proper position just behind the yearling's eyes, while still retaining the pressure of the left hand on the animal's face to steady him should he flinch.

When the bridle has to be removed single-handed, the operator first takes off the cavesson, and replaces it with the head-collar, taking care to adjust the latter *under* the bridle, so as not to impede the subsequent removal of the latter. He then lets out the jaw pieces of the bridle, as far as it is possible to do so, without causing the bit to drop out of the yearling's mouth. Standing in front of the colt, he takes the off-side jaw piece of the head-collar in his left hand, levers the animal's mouth open with his thumb, grasps the poll-piece of the bridle with his right hand, lifts it clear, and brings it over the ears, then lowers it, and the bit slips out of the yearling's mouth by its own weight, the animal's head being held steady throughout the operation by the left hand grasping the head-collar.

Some readers may perhaps think the above methods of putting on and taking off a bridle unnecessarily elaborate and fussy. The author holds very strongly that "Prevention is better than cure" when handling young horses. It often takes a fortnight's patient work to undo the evil effects of a few seconds' rough bungling.

The "hall mark" of a well-broken horse, whether for riding or driving purposes, is a good "mouth," and in no case is it more essential than in that of the race-horse. A

six-stone boy, on a bad mouthed horse, is powerless to regulate the pace his mount shall go. Even on a straight course his steering is apt to be erratic, while round bends it may become absolutely dangerous to others as well as himself. Too much care, therefore, cannot be taken to prevent the yearling's mouth being spoilt. It is scarcely necessary to point out that the yearling should never be lunged on the bit, but always on the cavesson. Apropos of good mouths, I have frequently been struck by the rather odd ideas on the subject held by some trainers, if one is to judge from their methods of breaking yearlings.

It is very unusual for breaking operations, especially on stud farms where yearlings are bred exclusively for public sales, to progress beyond the "bitting" and "leading" stages. "Tacking" and "backing" are usually the trainer's business. Yet it is far from uncommon for a stud groom, who, at the expiration of a week after delivery of his charges, inquires how the yearlings are going on, to learn that their progress is satisfactory, and that "they are all being ridden *loose*," with the accent on the *loose*, the inference being that the merit of the performance consists in the lightning rapidity with which the "riding loose" stage has been reached. If the above method is justified by results, trainers who favour it will not be influenced by the pious opinion of a mere stud groom. We live in rapid times, but the author is sufficiently old fashioned in his ideas to think that *too* much time cannot well be spent in "making" a young horse's mouth before he is "backed." A fortnight's tuition, in the tackle illustrated on opposite page, at the hands of an experienced man, will generally result in the pupil turning to left or right in its own length, like a polo pony. With this preliminary training, even the heaviest

MOUTHING TACKLE.

Face p. 132.

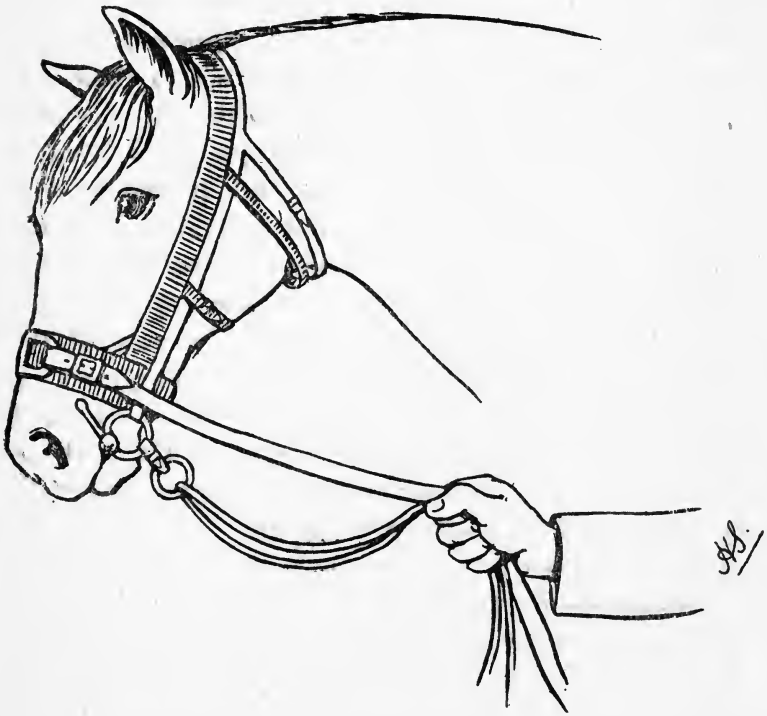
handed rider can do little damage; but where "mouthing and backing" proceed simultaneously, the practitioner will require to have better "hands" and seat, than the average stable lad possesses, if the pupil's mouth is to escape permanent damage.

MORE LESSONS.

The results of the first seven days' operations will be that the yearling lunges smartly from left to right and vice versa, and has become familiar with the bit. The next stages are getting light, well-fitted shoes put on the fore feet (after which shin boots will be worn when at exercise), and teaching to lead *on* the bit. An extra piece of narrow web, about six feet long, will now be required. After the yearling has finished his spell of lungeing for the day, the short piece of web should be passed through the ring of the couplings under the chin. This web and the long lungeing rein, which latter is, of course, attached to the nose-band of the cavesson, are so held in the one hand (p. 134) that the greatest pressure falls on the cavesson, if the yearling plays any pranks. In the case of a bad shy or plunge, the attendant slides his hand down the two reins, and automatically releases the short web attached to the bit, and throws all his weight on to the cavesson rein, thus avoiding inflicting injury on the yearling's mouth. Each succeeding day the pressure put on the bit should be gradually increased, and the end of the second week's training should find the yearling leading quietly on the bit *alone*.

For the third and final week's work a pair of knee-caps must be added to the pupil's outfit. After the necessary spell of lungeing, the cavesson rein will be changed on to the bit, the knee-caps put on, and the yearling will finish the day's work with a bout of walking on the public roads, to

accustom him to meeting and passing the usual traffic. In the case of meeting the first motor car, it will be necessary to trespass on the courtesy of the motorist, not only to stop his car, but also his engine. For it is a curious fact that a slowly-driven motor car often possesses less terrors for a



nervous horse than the purring engine of a stationary one. If the railway station is at a convenient distance, a visit to it may be included in the day's outing. This will familiarise the yearling with puffing engines and all the noise and bustle incidental to a busy railway station, and will greatly facilitate matters when the actual loading into the horse-box has to be gone through.

THE FIRST RAILWAY JOURNEY.

If things have progressed satisfactorily, the end of the third week should see the horse boxes ordered, and the yearlings quite ready to undertake their first railway journey. The average railway horse-box generally leaves much to be desired in the matter of cleanliness and freedom from risk of infection from its previous occupant. The official idea of disinfection usually stops short at sweeping the floor of the box free of droppings, supplemented, on special request being made, by a sprinkling of disinfectant on the floor. The mangers and fronts are ignored; yet if the microbes or bacilli contained in the nasal discharge of a previous occupant of the box, suffering from glanders, influenza, etc., are to be found, surely the manger is the one place, above all others, in which to expect them to lurk. The disinfectant apparatus at most horse-box sidings is very meagre, mostly restricted to broom, shovel, and pail. On the principle that "if you want a thing done well do it yourself," it is advisable to supplement the official routine by a personal one. A watering can, fitted with a rose or sprinkler, and containing a half-pint of Jeyes' Fluid, can easily be accommodated on the luggage cart that conveys to the station the straw for the boxes, and hay and corn for consumption on the journey, while a sponge can be carried in the pocket. Water is procurable at most stations with which to dilute the fluid to its proper strength. For this class of disinfecting the author believes in construing the "Directions for Use" very liberally. With this solution, the sides, ledges and mangers of the horse-box should receive a liberal sprinkling as high up as the sprinkler will throw it. To prevent injury to the yearling's eyes, lips, etc., the parts likely to come in contact with them should be subsequently swabbed dry with the sponge.

The actual loading of the yearlings into the boxes gives very little scope for useful directions. So much depends on the temperament, bold or otherwise, of the individual yearling. The author has safely loaded a dozen yearlings in forty minutes, and also spent over an hour in "boxing" one. Plenty of straw on the floor of the box and on the loading board is a *sine qua non*, and the man who leads the yearling should walk straight into the box in an unconcerned way, giving no hint to the novice he is leading, either by voice or movement, that anything unusual is happening.

It immensely facilitates loading operations to have all the partitions of the horse-box removed, practically converting it into a loose box on wheels. The exclusive use of a horse-box, constructed to carry three, by one yearling naturally adds considerably to the cost of carriage, and with a large batch of yearlings in question might also necessitate a special train, owing to the number of horse-boxes being too great to be attached to an already heavy ordinary train. Being a firm believer in the unwisdom of "spoiling the ship for a ha'porth of tar," the author would not hesitate to spend five pounds for the "excess" fare of a yearling valued at four figures. It is no small ordeal when a yearling, fresh from the comparative quiet of the stud farm, finds itself confined in a compartment, two feet in width, with the roof almost touching its ears, swaying violently from side to side, on a fast-running train, and being at intervals scared out of its wits by the deafening roar of another train passing only a few feet away. I have "shipped" many yearlings in this way without serious mishap, but I have also spent many a bad five minutes vowing never again to tempt Providence in like manner, whilst striving, with hand and voice, to check the mad struggles of a panic-stricken youngster. Even if no serious damage is done, the

victim retains such a vivid recollection of his first experience of a railway journey that it will require many subsequent trips completely to restore his confidence. Later on in his career his prospects in some valuable engagement might be seriously discounted by a rough railway journey to the scene of action. If economy is essential, two colts, or two fillies, could be turned loose together in one horse-box from which all partitions had been removed. But whatever plan is adopted, it should be a fixed rule not to tie a yearling up on its first railway journey. If the stalls or partitions are not taken out, the yearling should be held by the leading rein; if the partitions are removed, all hinges, projecting bolts, etc., should be protected with hay-bands, and the yearling completely stripped of all tack and turned loose.

Though not more prone to sentimentality than others of equally prosaic occupation, the stud groom, having safely delivered his charges to the trainer, is often conscious of somewhat mixed feelings. His sense of relief at being freed from a great responsibility is tinged with regret at parting with animals at whose births he has officiated, and whose subsequent daily growth and well-being have been the constant objects of his solicitous care. The silver lining to his cloud of regret is, in this case, an unshakable faith that his late protégés will shortly be making Turf history of the most glorious kind, and that the home stud, and incidentally himself, will bask in the reflected glory thereof. In some cases he also comforts himself that it is "Au-Revoir and not Good-bye," and looks confidently forward to the day when, having added such names as "Epsom," "Doncaster," "Ascot," and "Goodwood" to the war-worn "colours," they will return to the well-remembered paddocks to receive a warm welcome from their old stud groom, and to become the sires and dams of future equine champions.

FORCED GROWTH.

The objective of most stud masters, whether breeding thoroughbreds for sale or to carry their own racing jacket, is the production of race-horses of the highest class. As a Field Marshal's batôn was said to be enclosed in the knapsack of every soldier of France, so, too, should every stud groom regard every foal in his charge as a promising aspirant to the "Triple Crown." One has only to study the history of the Derby to realise the vast gulf of disappointment, ill-luck, and failure which lies between anticipation and realisation. Some breeders have seen the "shortest of short heads" rob their champion of victory. Again, non-entry or "striking out" have converted what would have been a "certainty" into an "ineligible," and so on. Nothing shows the elusive character of this coveted prize more than the familiar spectacle of from ten to fifteen runners out of an original entry of over three hundred. No wonder that a feat so extraordinarily difficult of achievement is so highly prized when accomplished.

It is said that horses run in all shapes. Be this as it may, to ensure much success on the Turf a horse must have the following essentials, viz., hard bone, great muscular development, large lung capacity, and a strong constitution. At first sight it would appear that all the stud groom has to do is to see that the young aspirant to the Blue Riband has dry, sound, limestone uplands to graze on for the production of big, ivory-like bones; plenty of liberty for the development of muscles; fresh air for lung development; and no "coddling" in stables to ensure a hardy constitution. But, unfortunately, it is not all quite such plain sailing as that; owing to the conditions prevailing on the English Turf, it is a case of being betwixt the Devil and the Deep Sea. Enormous stakes are offered for two-year-olds to

compete for, necessitating the baby horse being broken in and carrying lads up to nine stone on their immature backs at 16 to 18 months old, and also being required at 24 months (in some cases even earlier) to carry nine stone, five furlongs at top speed in actual races. In a state of nature the horse does not reach full maturity till between his fourth and fifth year; it follows, therefore, that in racing two-year-olds Nature is deliberately ignored.

Although it is doubtless very pleasant to denounce things that ought not to be, it is generally more profitable and less troublesome to accept things as they are. The very prominent place held by two-year-old racing at the present day being an established fact, the practical breeder and his stud groom will adopt methods of horse rearing best calculated to ensure success under existing conditions. These conditions as applied to two-year-old racing may be best described as "artificial," entailing that the rearing of young bloodstock must also be by artificial, as opposed to natural methods.

As illustrating "Natural" methods of horse rearing, I cannot do better than give a brief description of the conditions under which I reared horses on a Canadian prairie ranche. Mares and foals roamed at will, Summer and Winter, over an area of roughly thirty square miles. The mares "kicked off," or weaned, the foals when the latter were about nine months old. No sheds, corn, hay or fodder of any kind were provided; the stock foraged for themselves. From November till the end of March snow fell at frequent intervals, the depth varying from six inches to two feet. Rivers were frozen solid for months on end, so that teams and waggons crossed the ice at will. The thermometer registered from 10 to 40 degrees below zero all winter. These foals

were by thoroughbred stallions (in the English or American Stud Books) out of mares with two and three thoroughbred crosses on a native foundation. At four years old the young stock were "rounded up" and broken in for remounts, cow-horses, and general purposes. The outstanding features about them were their extraordinary good legs and feet, cannon bones like bars of steel, and hoofs as tough as whalebone, while their staying powers and endurance during long journeys with big weights on their backs were simply phenomenal. The average height of these four-year-olds was from 15 hands to 15.2. And yet, at the Newmarket July Sales of bloodstock, a *yearling* if not 15 hands high is "crabbed" as being "a bit on the small side." The horse reaches his full growth, so far as height at the withers is concerned, in his third year. The height of the British thoroughbred horse of to-day averages 16 hands, and as "fashion" demands that he should be 15 hands high at one year old, it is obvious that his development must be of a very uneven nature. Minoru, a 16-hands horse, was foaled March 16th, 1906; on May 1st, 1907, one year and six weeks later, he measured 14 hands 3½ins.; on August 1st he measured 15 hands 1¼ins. Thus in three months he grew 1¾ inches, and took 18 months more to grow the 2¾ inches necessary to attain his ultimate height of 16 hands. From measurements taken of 120 thoroughbred yearlings during the last five years, I find that their average growth from May 1st to September 1st was a shade over two inches during those four months. I took no measurements of ranche-reared stock till they had reached maturity, but from appearances it is safe to say that a fifteen hand yearling was a "rara avis"; their growth, to their final height of 15.2 or 15.3, being much more gradually and evenly accomplished, as was only to be expected from the method of their rearing.

To grow a yearling that will measure 15 hands at from 12 to 14 months old requires a liberal ration of good corn, and shelter from winter wind and rain. To expect under such treatment to get the same tough limbs and rugged constitutions as one finds in the prairie-reared horse is unreasonable. If one wants strawberries in January one forces them; if race-horses measuring from 15.3 to 16 hands at two years old are required, "forcing" again becomes a necessity.

One reads very frequently nowadays that the British thoroughbred is sadly deteriorating, and comparisons are made with old-time equine celebrities, much to the detriment of the former. Doubtless there were giants in the land in those days both as regards horses and jockeys, but one needs to compare very carefully the conditions under which racing was then carried on and is carried on to-day, before giving a verdict either one way or the other. In those "good old days" four-mile heats were in fashion, and there was no such surfeit of two-year-old and sprint races as prevail to-day. The jockeys of yore, with legs straight and hands down on withers, held their mounts well together till the "distance" was reached, when they turned on full steam and depended on artistic horsemanship and a comparatively fresh horse for victory. To-day, when the "tapes" fly up, top speed is turned on, the jockeys, with knees on withers and hands within a foot of the bit, urge on their mounts, balanced or unbalanced as luck will have it, till the post is reached. "'Tis the pace that kills"; the strain of "coming right through" on even a five-year-old must be very severe, so what must it be on a delicately nurtured, still growing two-year-old? The question of deterioration might be best answered by asking another question, viz., "Would the horses of bygone days have stood

the 'hell for leather' tactics of to-day better than do the modern thoroughbreds" ?

Many trainers complain that the material they have to work on in the present day is more difficult to train, and stands the wear and tear of racing very badly compared with horses of twenty years ago. Each year as the stud groom delivers the annual batch of yearlings to the training stables, the trainer expresses a pious hope that this lot will prove more satisfactory than the last, which the stud groom is apt to construe into a back-handed slap at his ability. Is it not quite feasible that the stock is not really deteriorating, but that the tasks set on the race-courses of to-day, and incidentally on the training grounds, are immeasurably more severe than those confronting the horses of twenty years ago? Is it mere coincidence that the charge of deterioration has been made with ever-increasing vehemence during the last ten or twelve years, or, roughly speaking, since the year that "Tod" Sloan arrived and revolutionised the methods of George Fordham, Fred Archer, Tom Cannon, John Watts, and other brilliant horsemen?

When it is realised that the most rapid stage of the horse's growth is that between the age of 12 and 24 months, which period coincides with the breaking in and conditioning stages of the two-year-old's career; and if the percentage of the crop of foals of any one year that succumb in either their two or three-year-old season to what are called the "exigencies of training," is worked out, some clue may be gained to the cause of the alleged deterioration of the British Thoroughbred.

At the very commencement of this book the question of "ideals" in connection with stud farm planning was introduced, and throughout the succeeding pages the author's object has been to suggest "ideal" methods of obtaining the

"ideal" race-horse, *i.e.*, the horse that can both stay and go fast, and stand the "wear and tear" of training as long as did that popular favourite "Dean Swift." The various essentials that have to be united and co-ordinated before this happy consummation can be realised are in the author's humble opinion the following:—

1. An "ideal" breeder-owner, *i.e.*, one who is wealthy enough to be able to "wait and see," and courageous enough sometimes to leave the beaten track and boldly strike out on a course of his own.
2. An "ideal" stud farm "ideally" managed.
3. "Ideal" management of sires, mares, and young stock, which latter includes late weaning of foals and abstention from two-year-old-racing.
4. Careful breaking and "mouthing" by a trainer who insists on his lads sitting on their horses instead of crouching, and who "puts up" jockeys who model their style on that of Tom Cannon, John Osborne, and the late George Fordham.

On some such lines as these will be produced "ideal" race-horses of a calibre to delight the hearts of the most ambitious breeder and the most enthusiastic Stud Groom.

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